

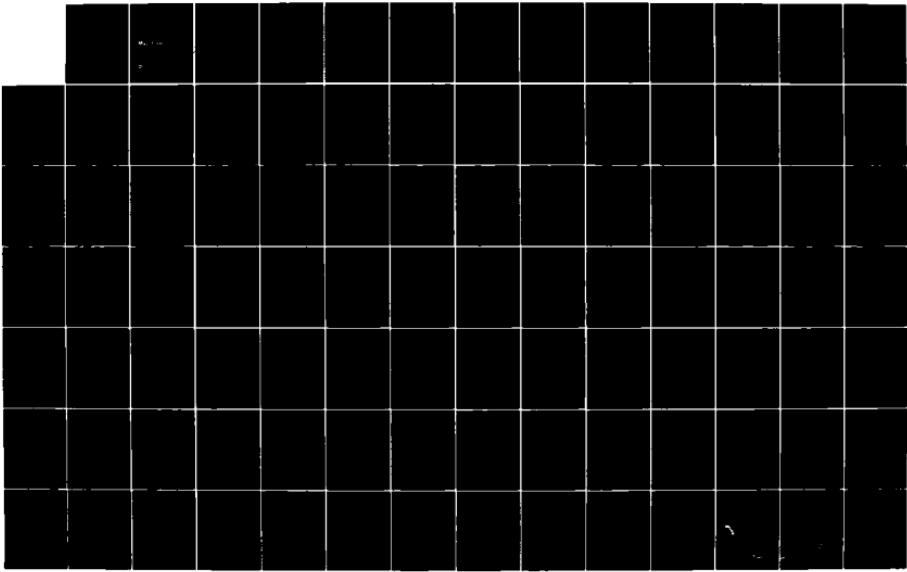
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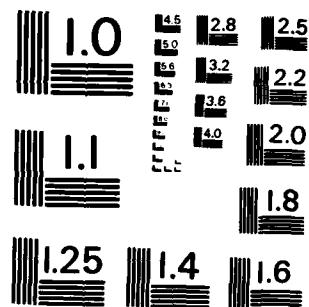
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Chesapeake Bay Low Freshwater Inflow Study
Phase II Biota Assessment

Map Folio

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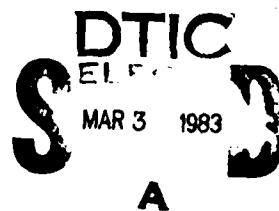
US Army Corps
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Prepared for U.S. Army Engineer District Baltimore
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) An assessment of the effects of low freshwater inflow conditions on the biota of Chesapeake Bay was conducted through use of data output from the U.S. Army Corps of Engineers' Chesapeake Bay Hydraulic Model. Four sets of test conditions (scenarios) were used which simulated effects of drought and effects of future consumptive water withdrawal and use as deviations from present average flow conditions. Changes in habitat of over 50 biological organisms were predicted and mapped based on salinity and other variables. Changes in habitat,		

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After inflow conditions on the biota of data output from the U.S. Army Model. Four sets of test conducted effects of drought and effects of as deviations from present average or 50 biological organisms were pre- er variables. Changes in habitat,	

which were used to delineate the amount of impact from low flow, were found to include increases and decreases depending on the species, its lifecycle, tolerances, and interactions with other organisms. The magnitude of habitat change was found to generally increase as salinity changes increased.



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INTRODUCTION

This folio is a principal product of the Biota Assessment portion of the Corps of Engineers' Chesapeake Bay Low Freshwater Inflow Study. The purpose of the mapping is to portray habitat for selected Chesapeake Bay species under a variety of freshwater inflow conditions. They are based on the results of tests done on the Chesapeake Bay Hydraulic Model simulating four freshwater inflow conditions. These were:

- 1) Base Average -- average freshwater inflow conditions.
- 2) Future Average -- reflective of average inflow conditions reduced by increased water consumption projected for the year 2020.
- 3) Base Drought -- simulating an actual drought in the 1960's.
- 4) Future Drought -- simulated 1960's drought inflows, reduced by increased water consumption projected for the year 2020.

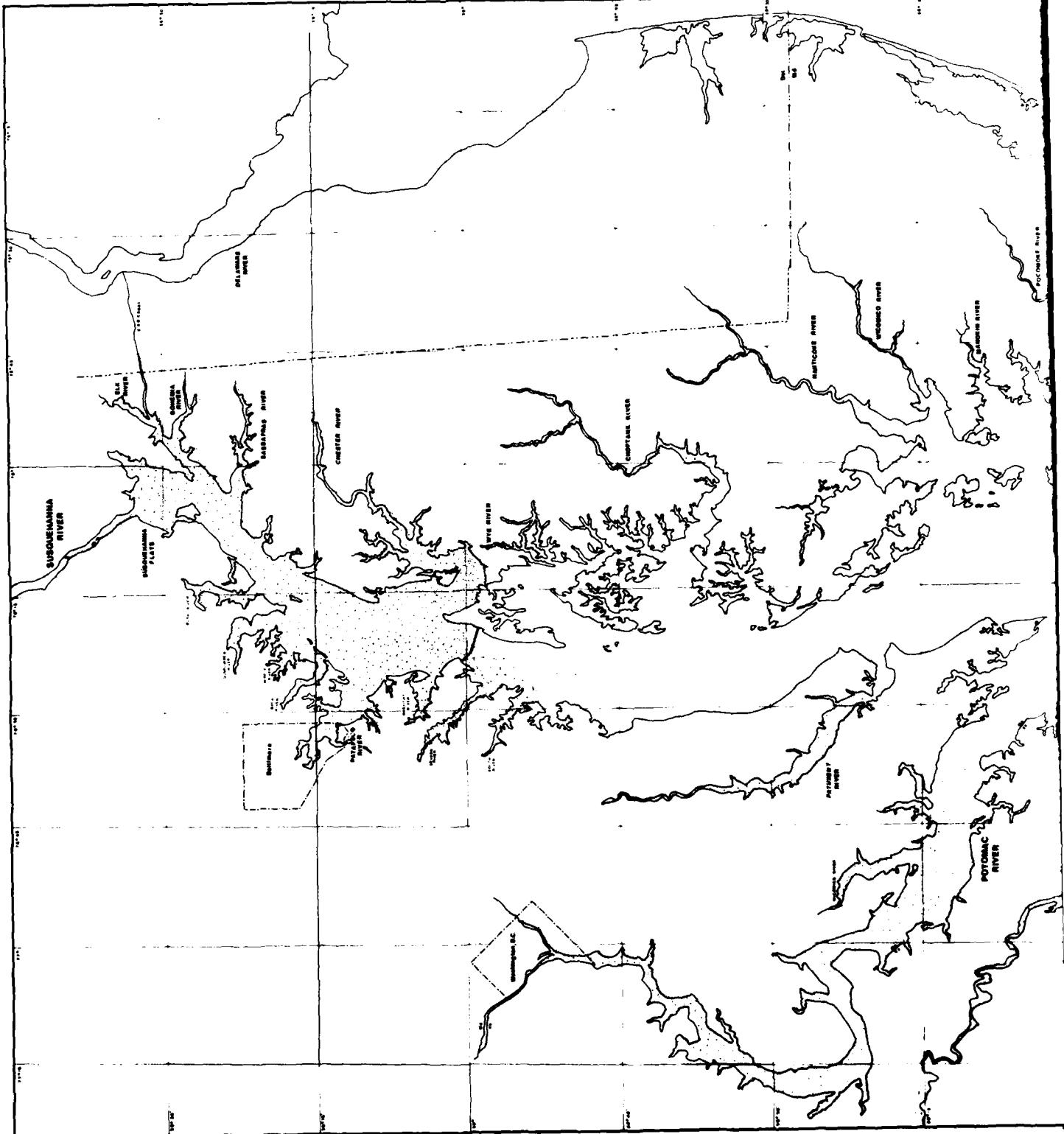
Data from the hydraulic model tests were subsequently used to generate seasonal average salinities at various depths from the mouth of the Bay to the head of tide in each tributary. These salinity data, in conjunction with data on depth, substrate, and dependence on other organisms, was used to create the maps of habitat portrayed in this volume. For further discussion of the information presented herein, the reader is referenced to the Chesapeake Bay Low Freshwater Inflow Study Biota Assessment, Phase II; Final Report, May 1982.

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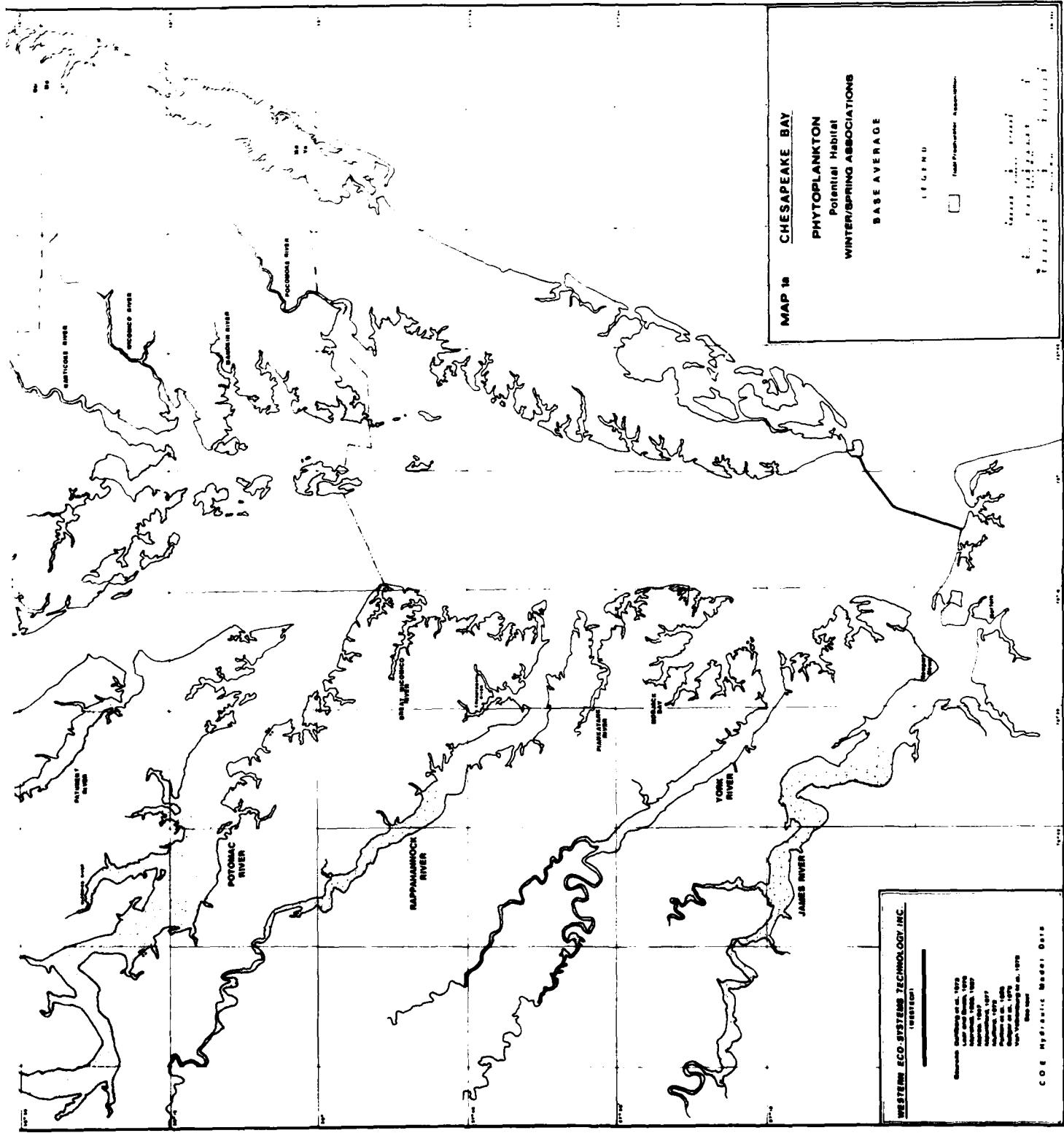
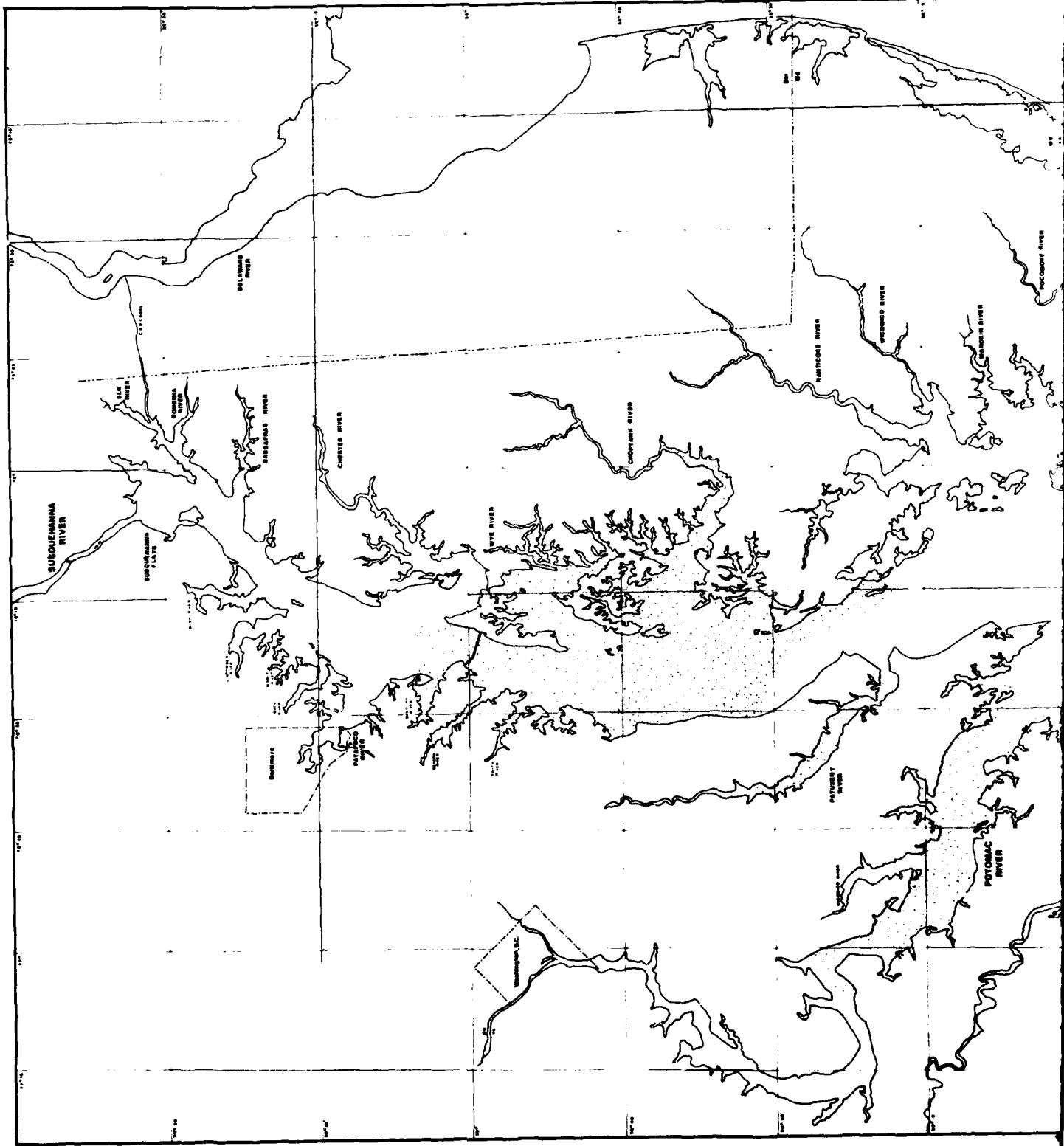
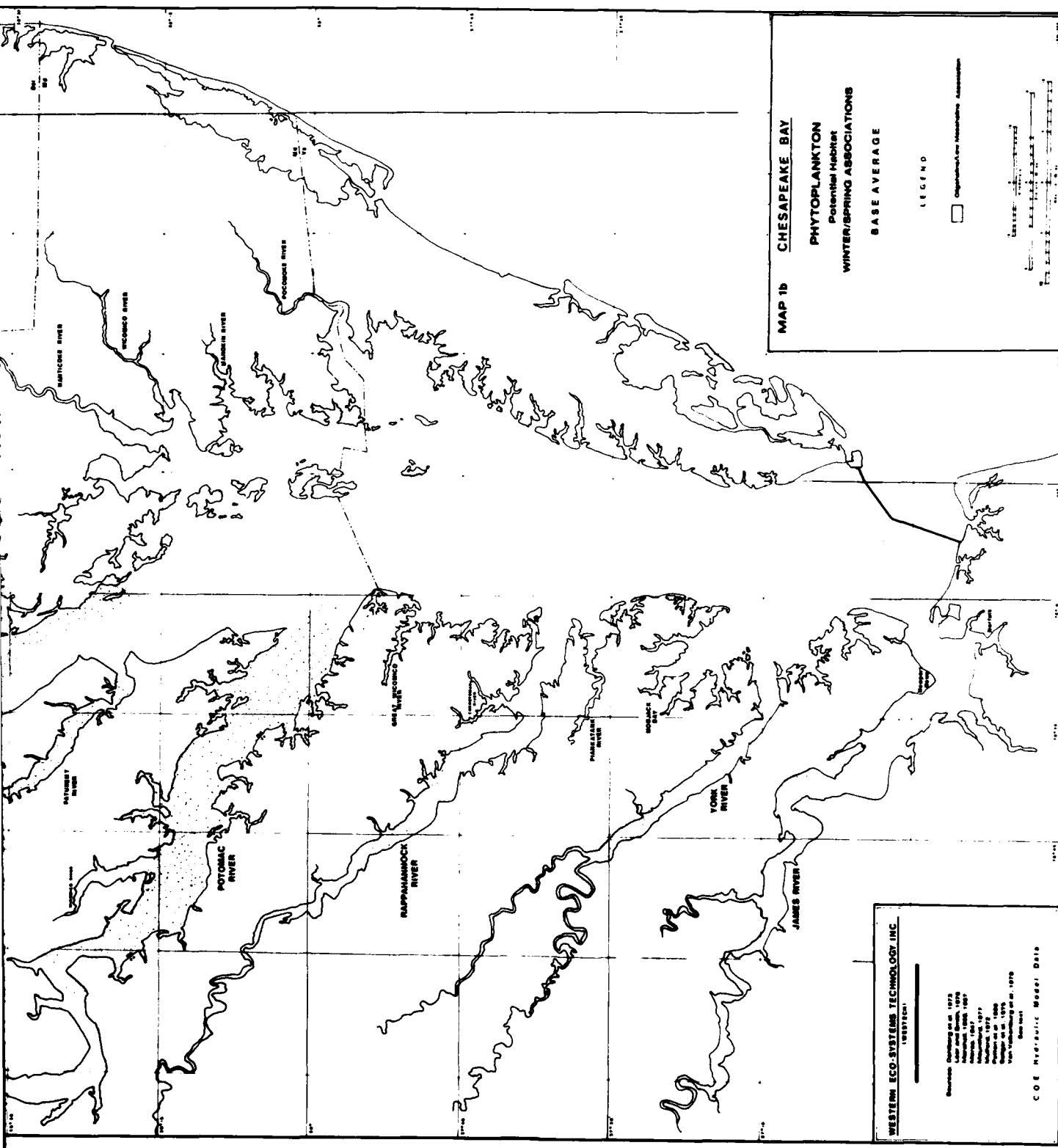


Plate 1





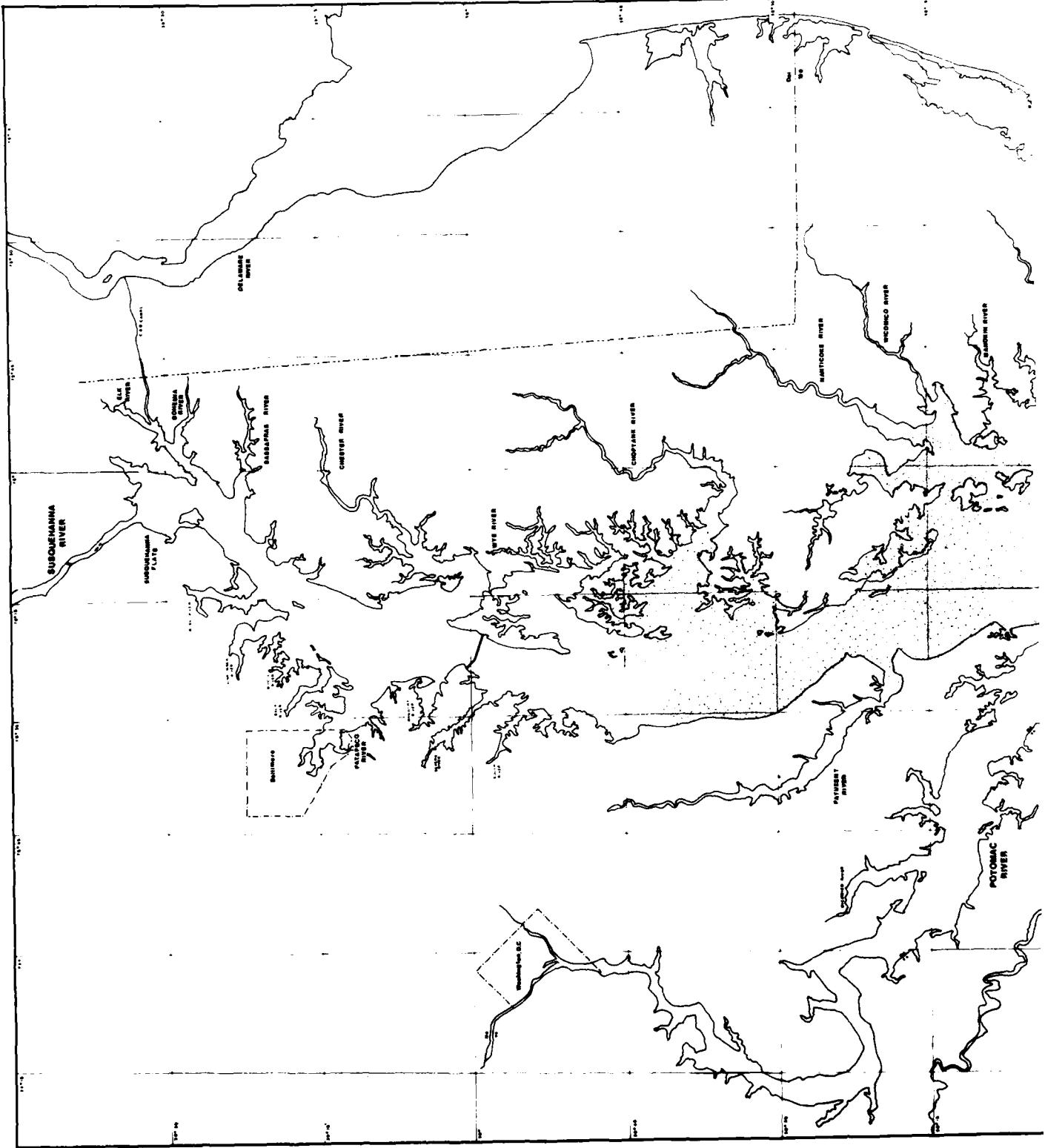
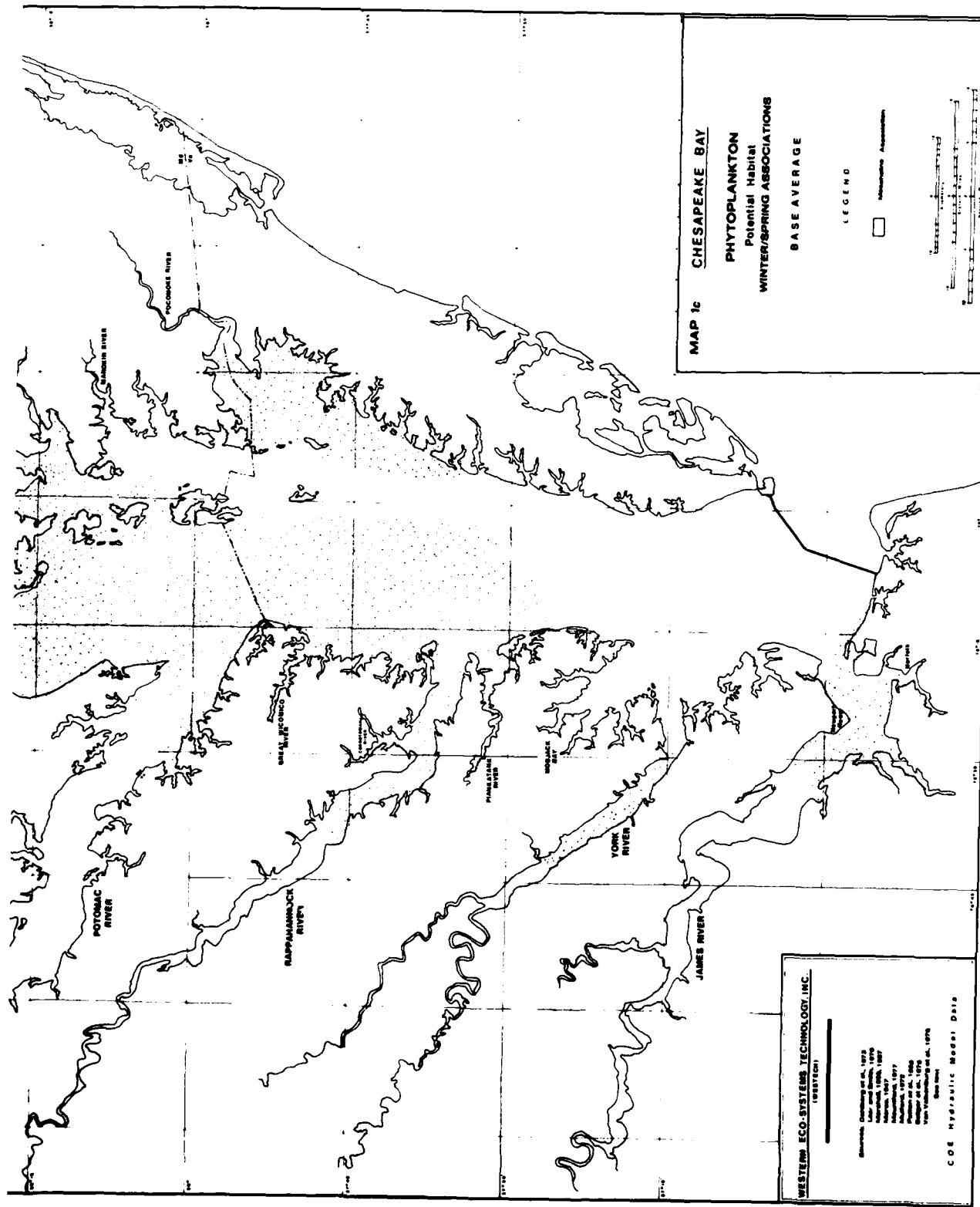
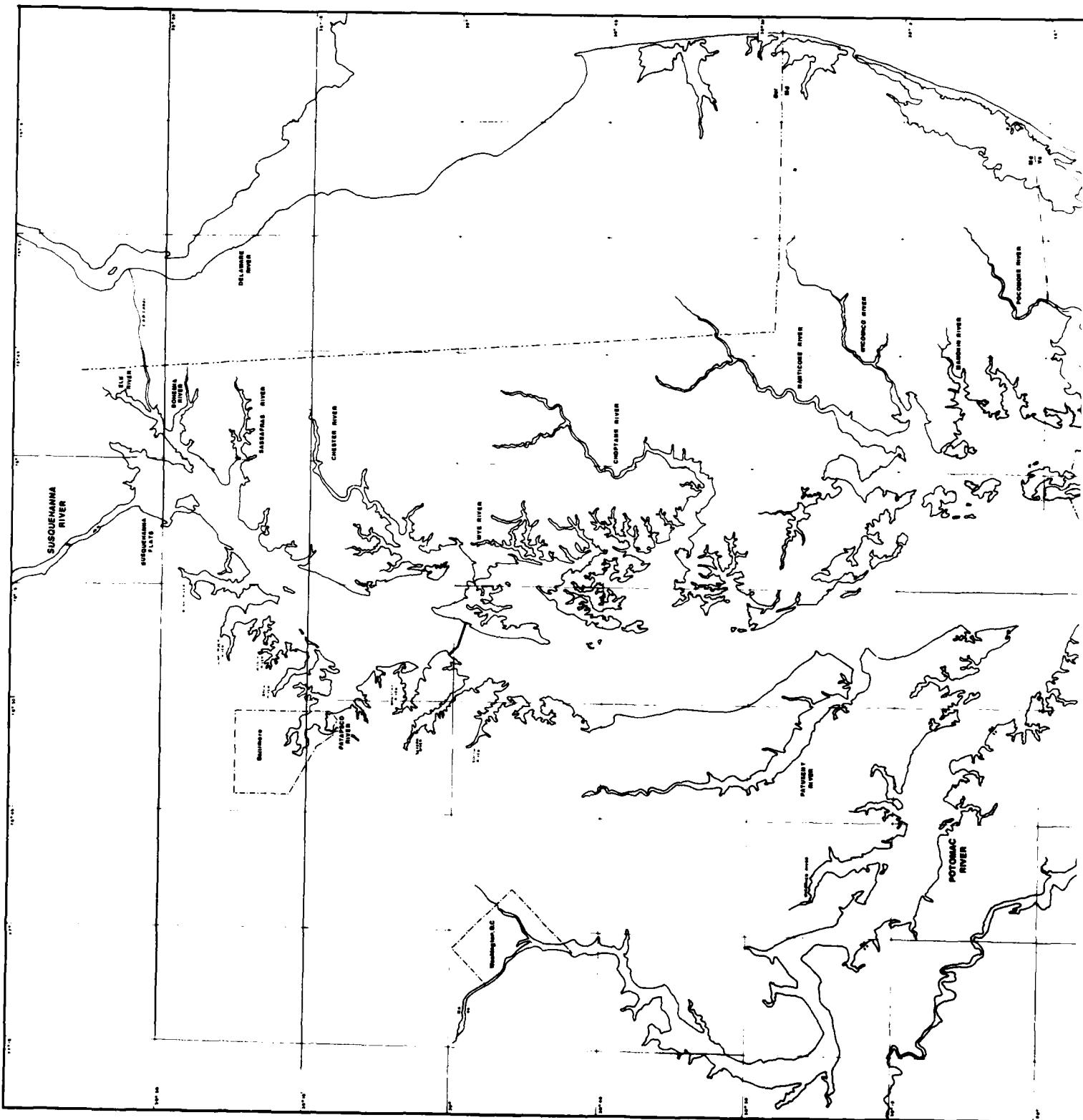
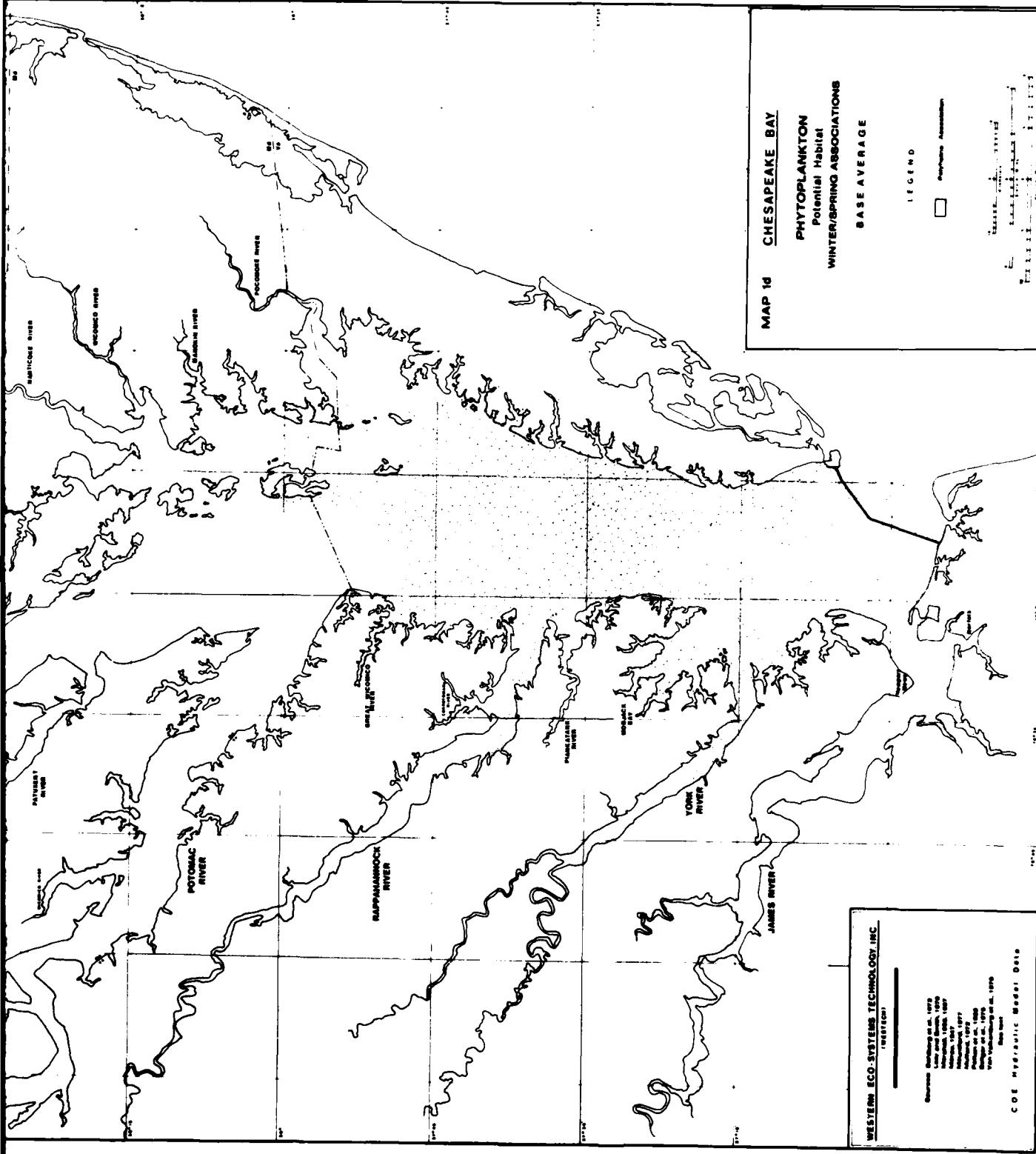
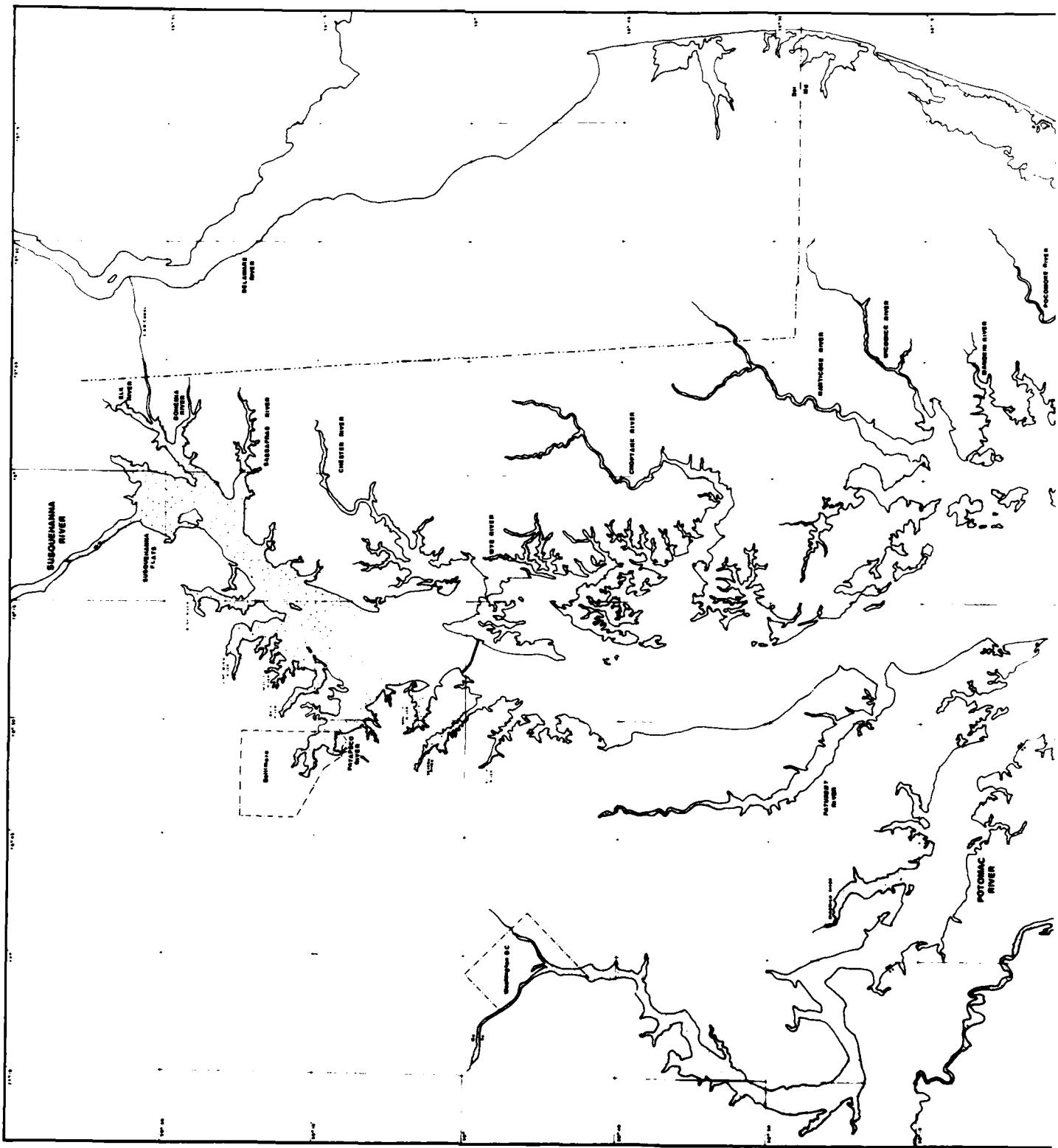


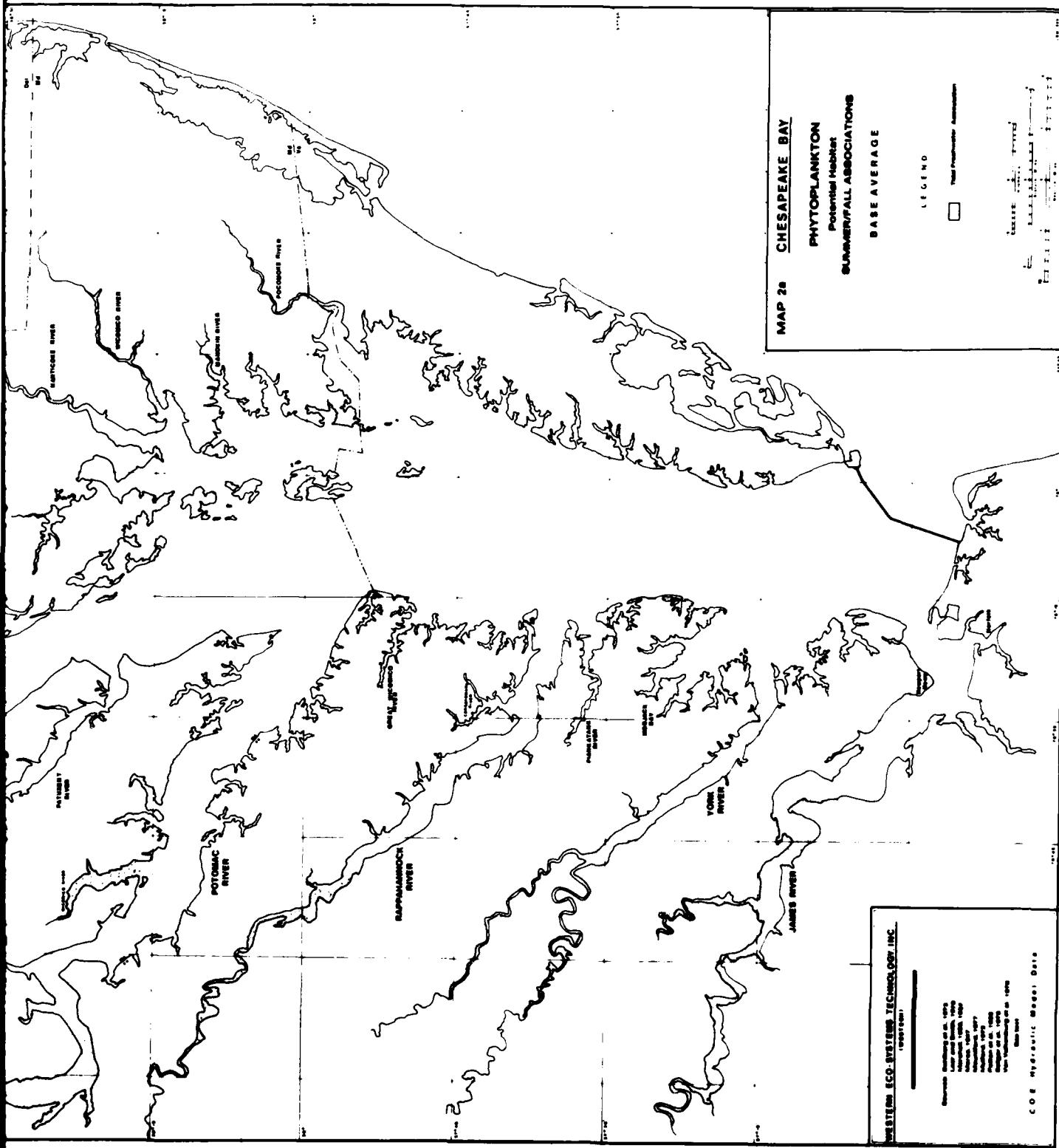
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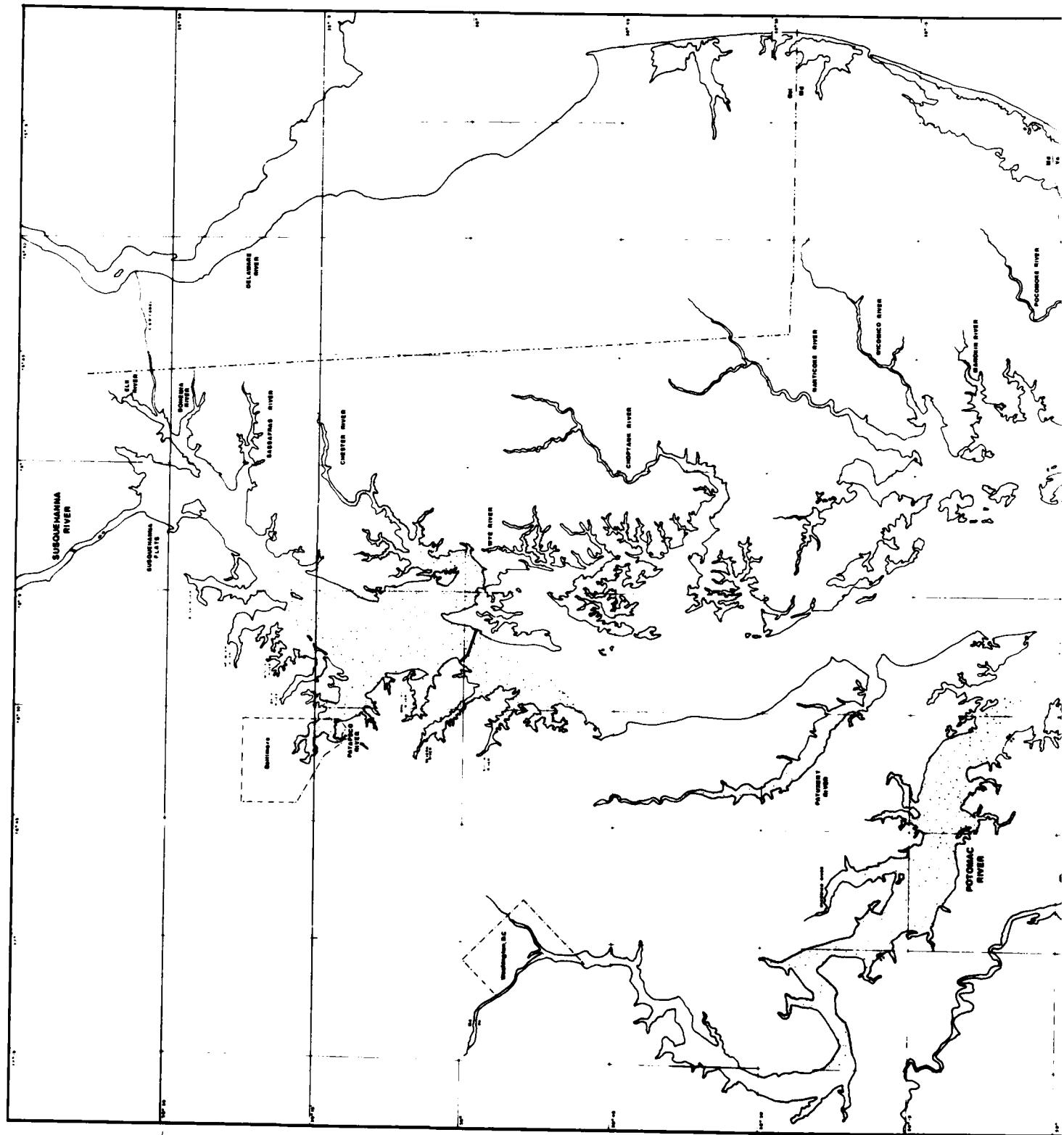
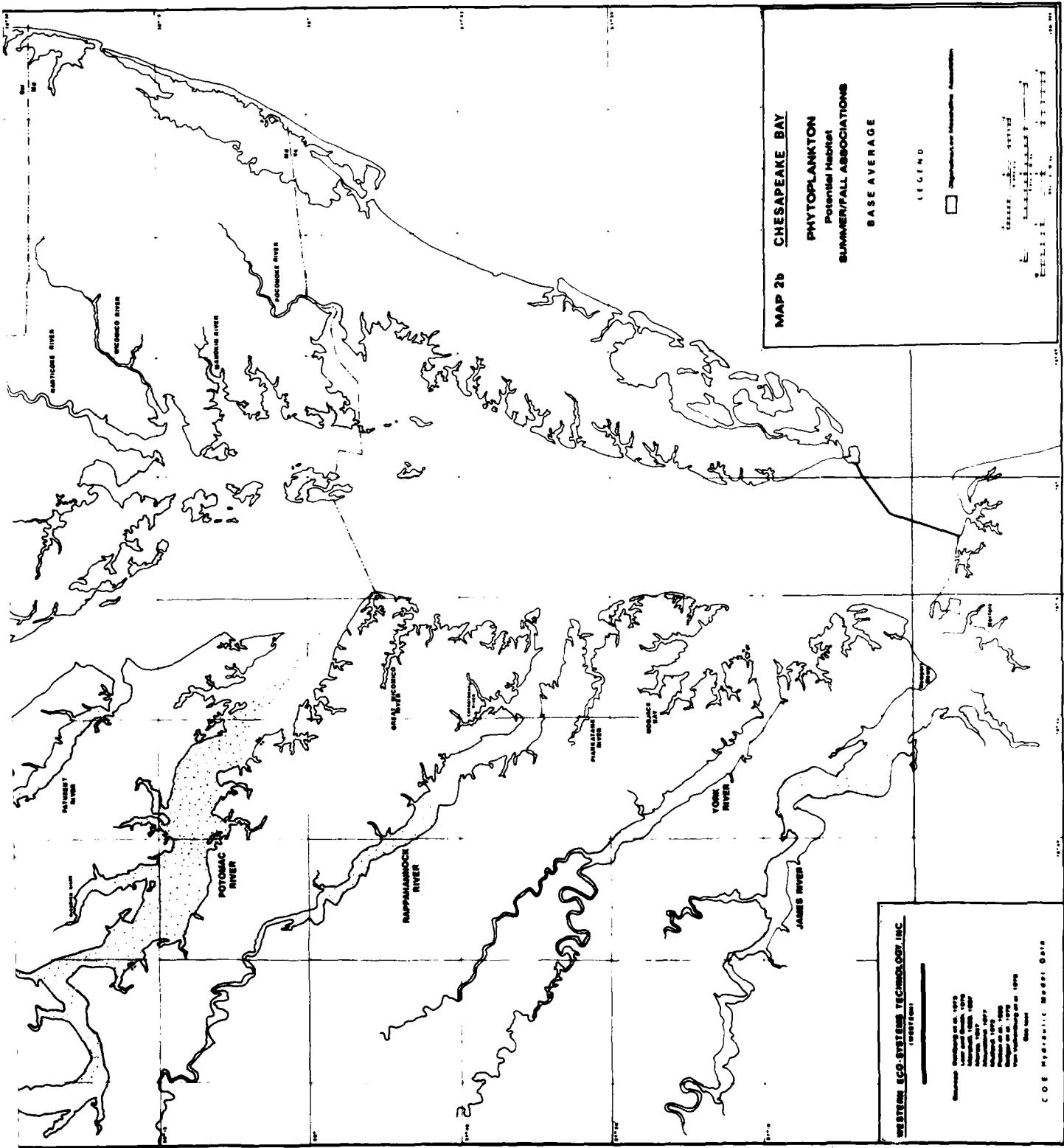


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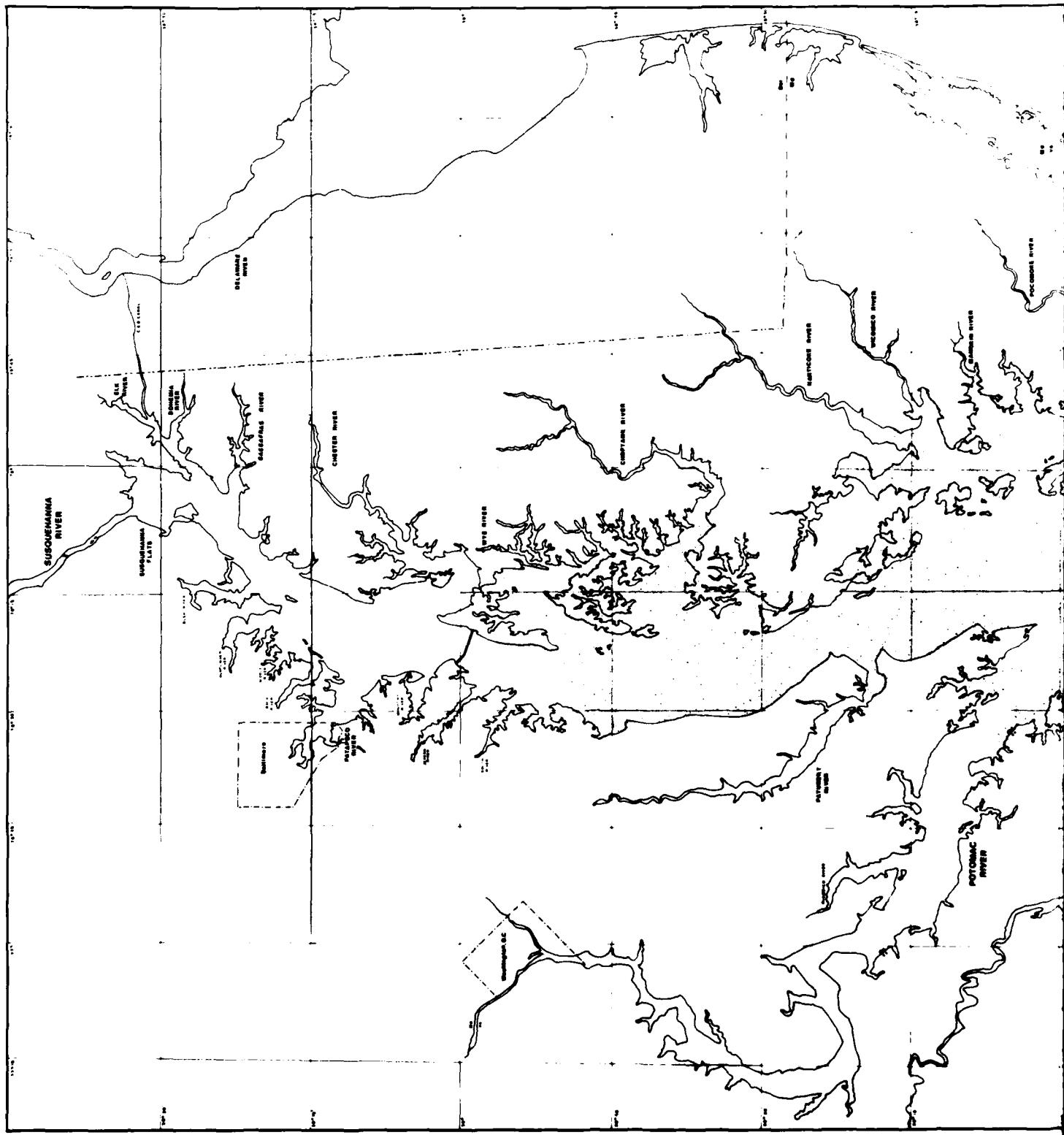
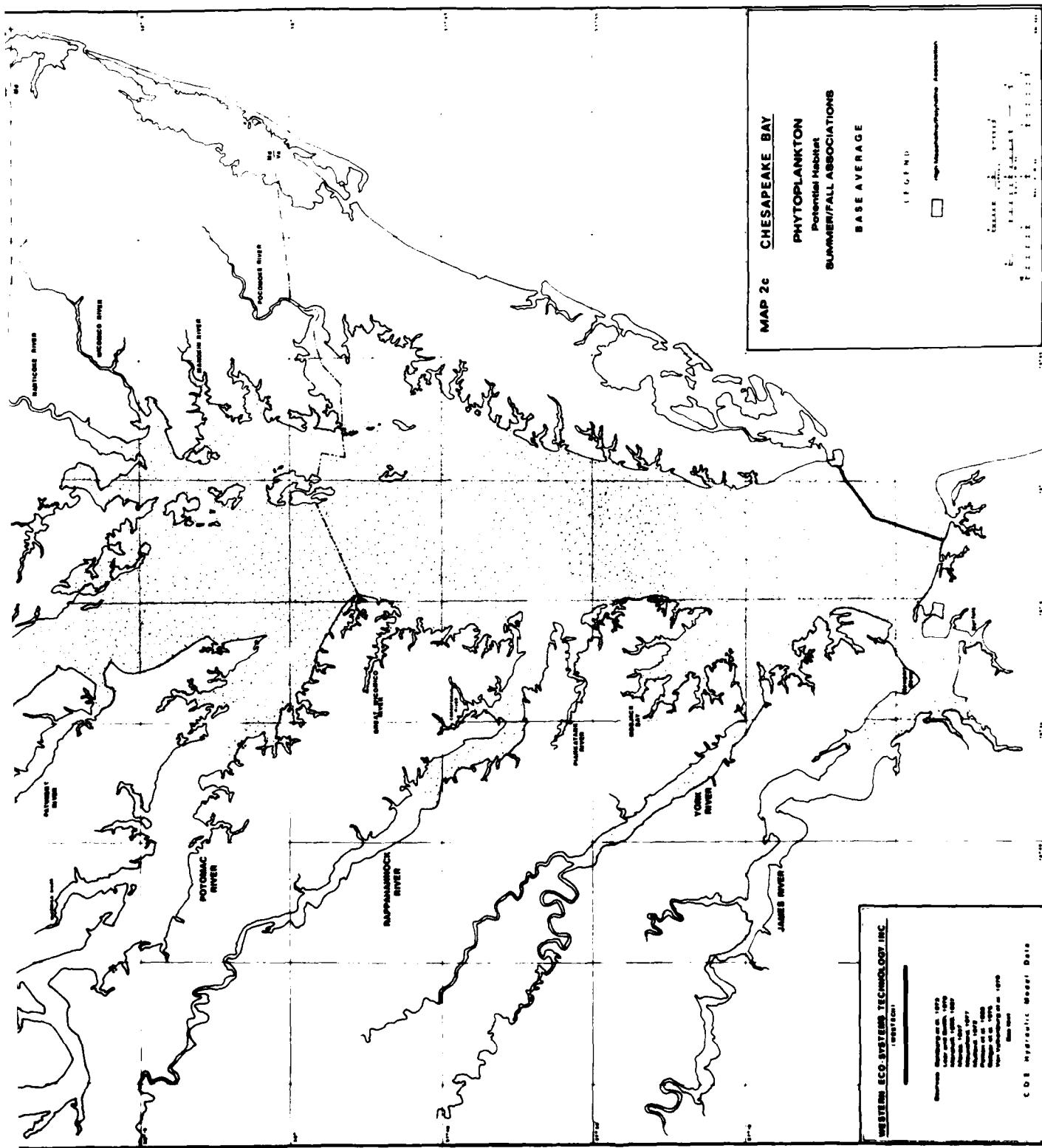
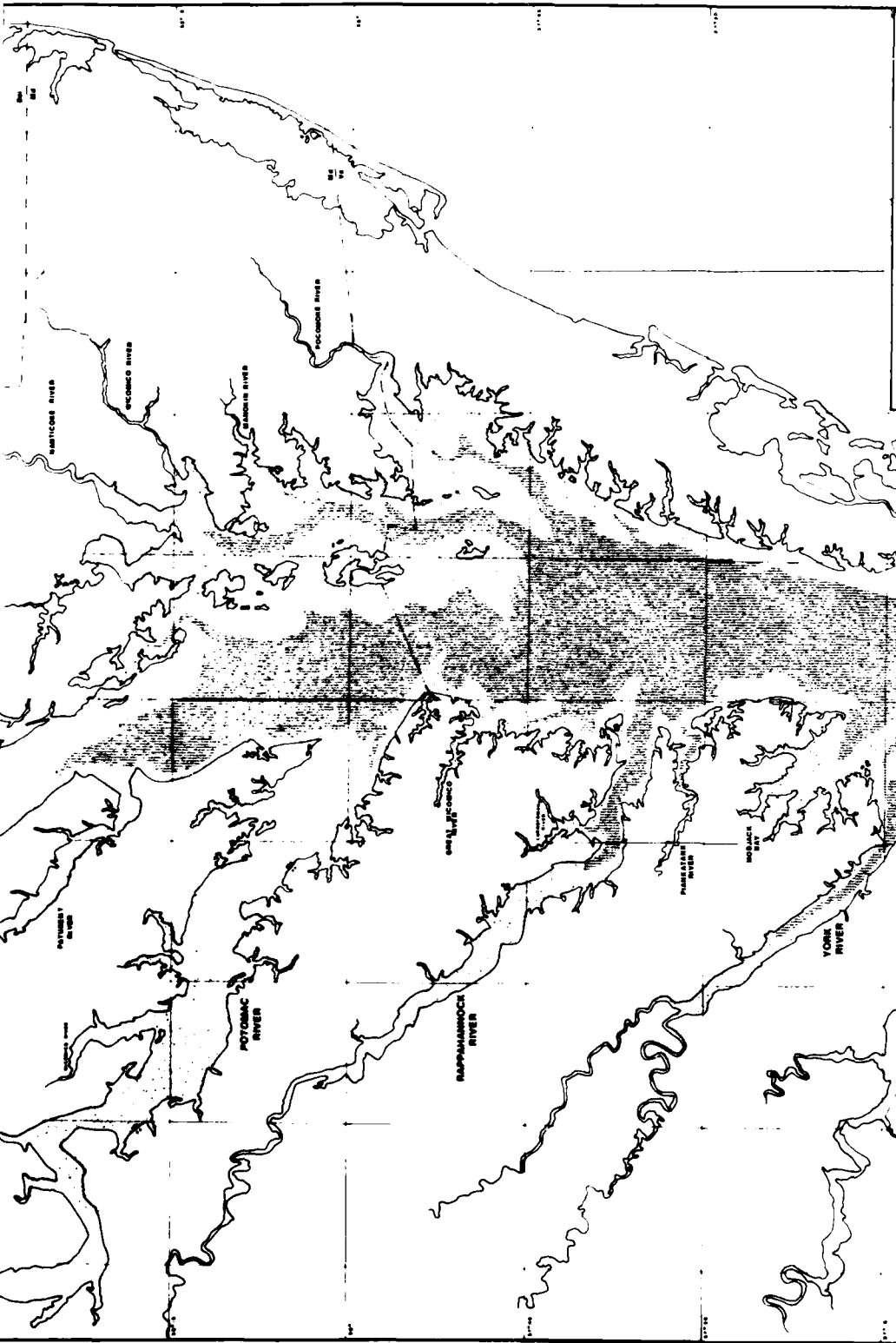
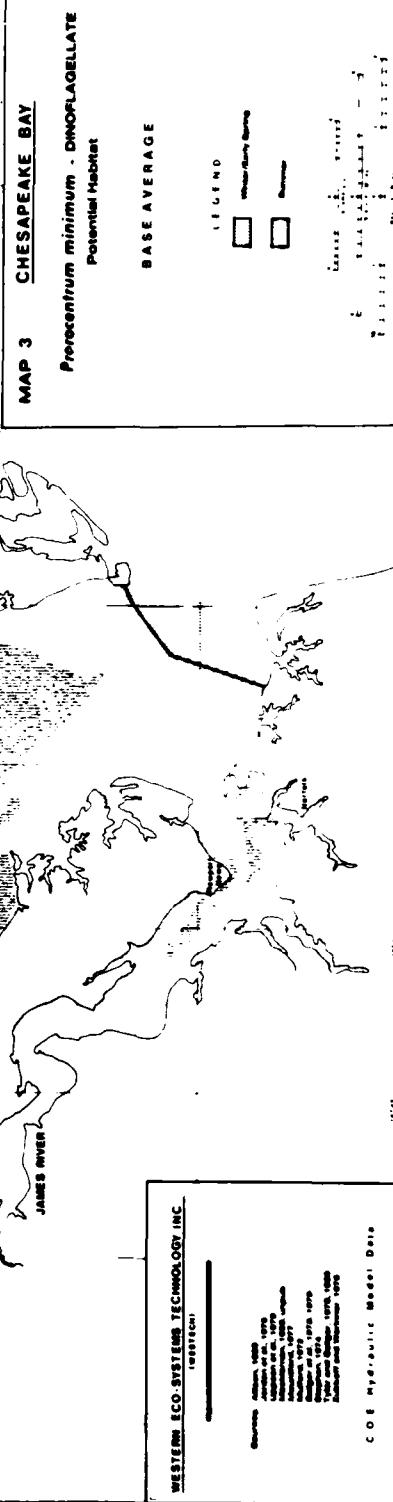


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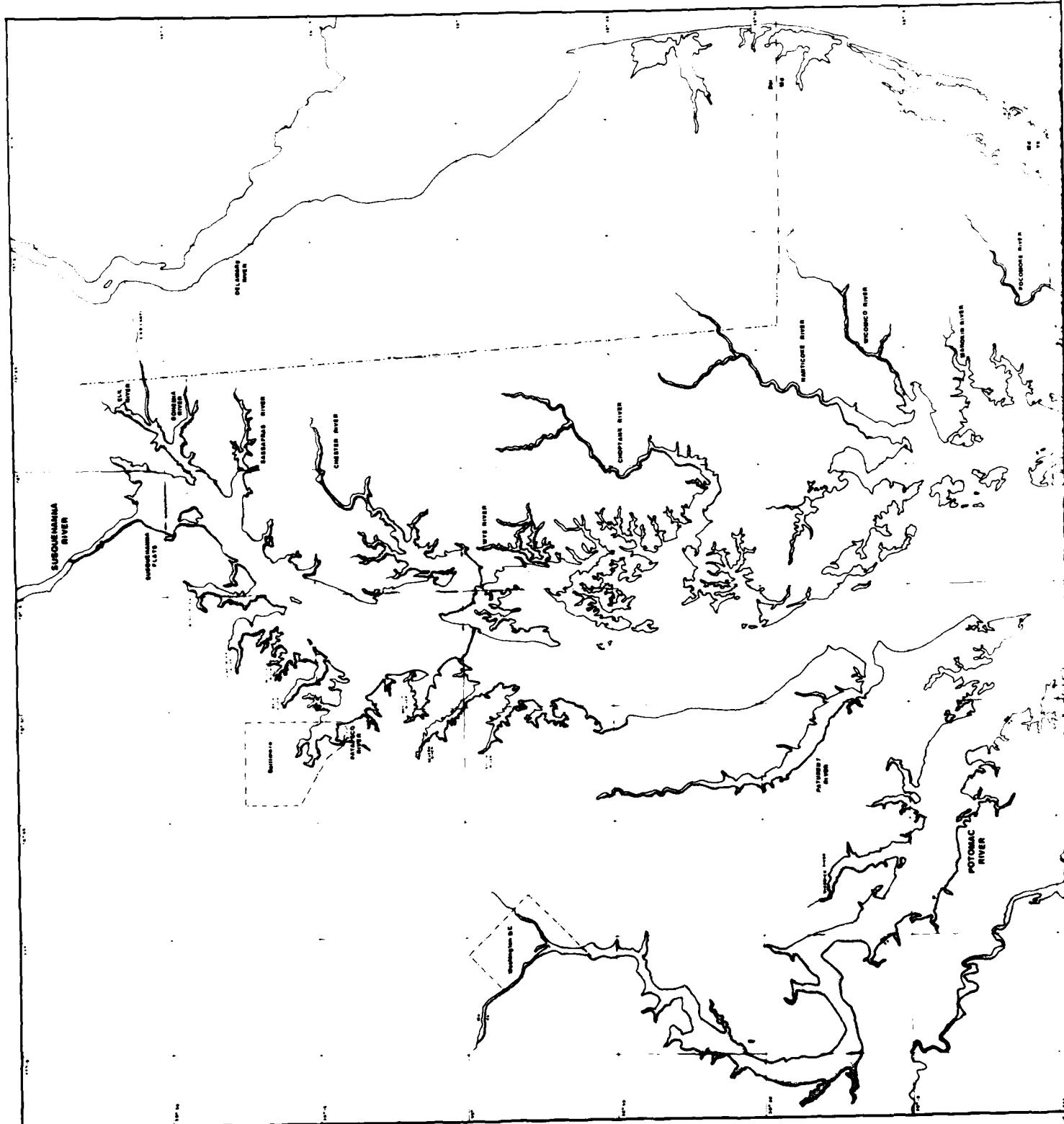
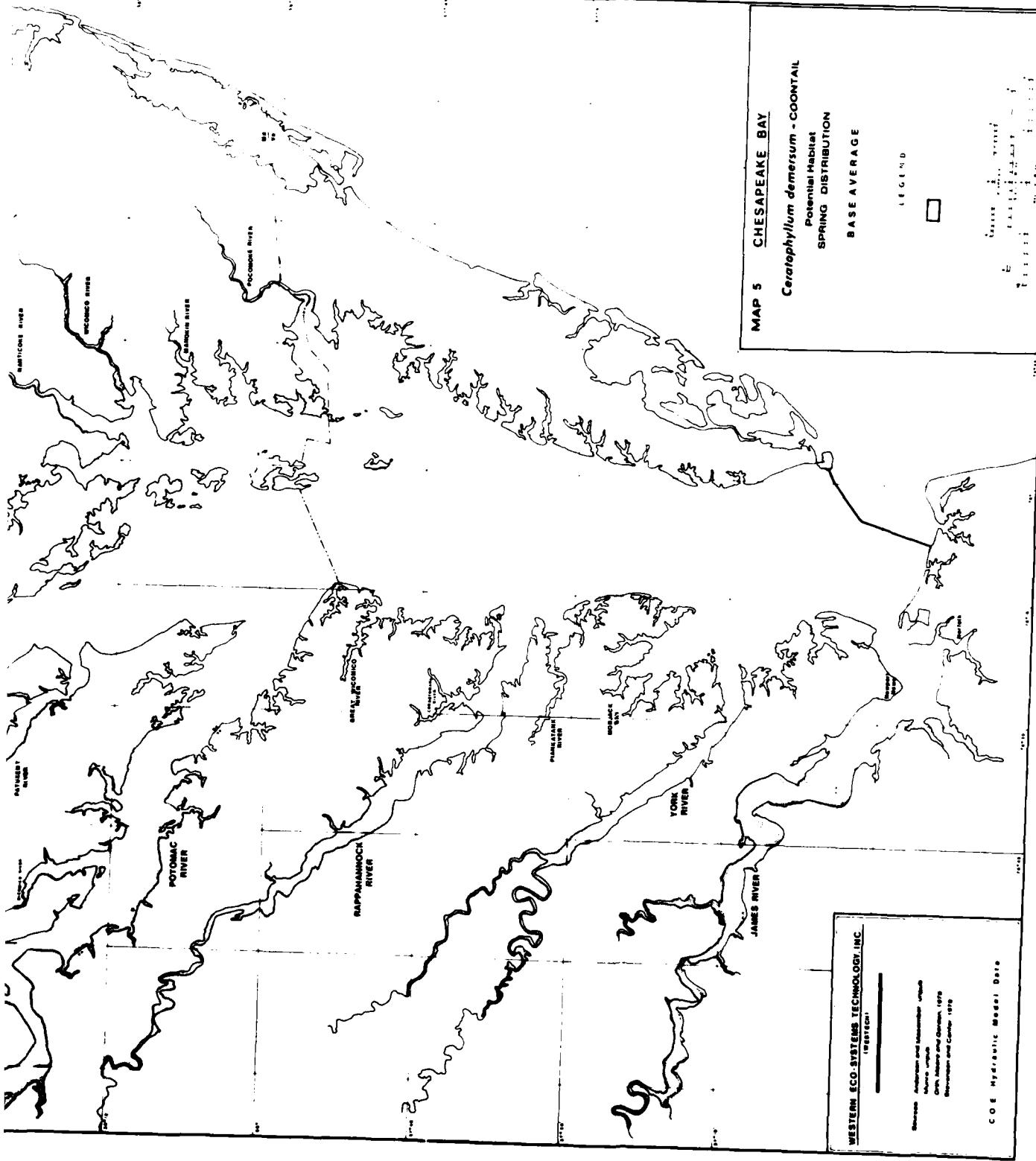


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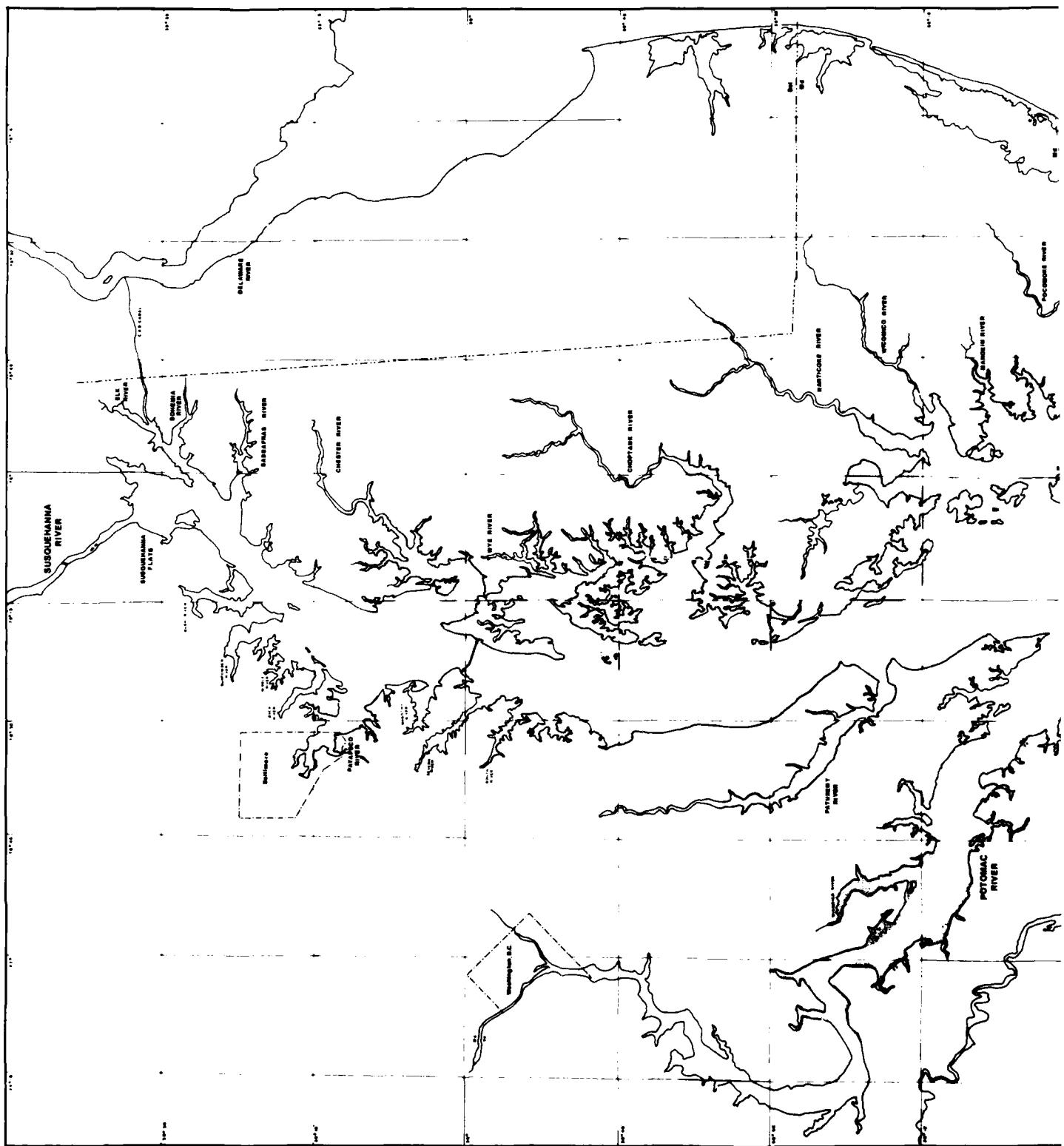
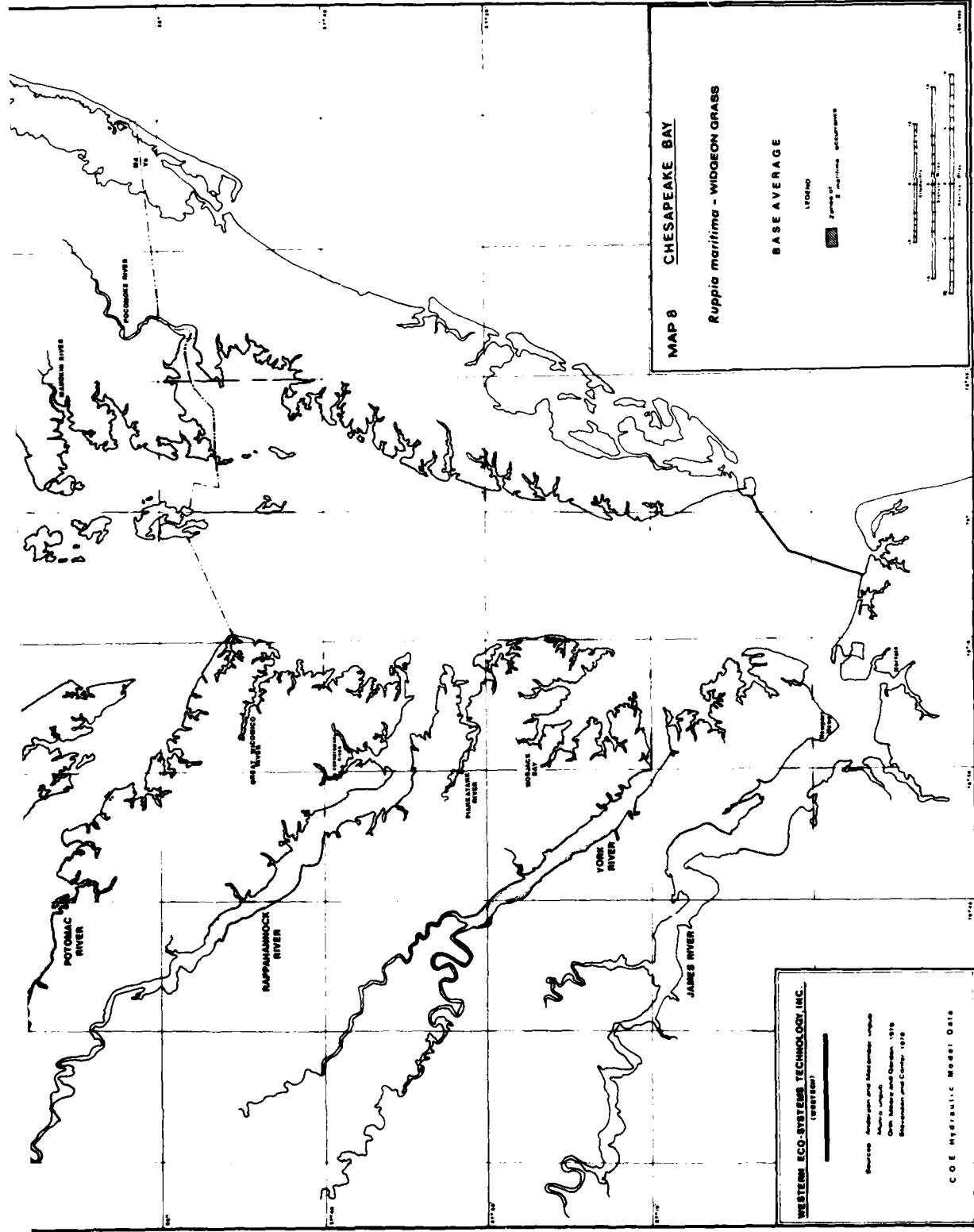


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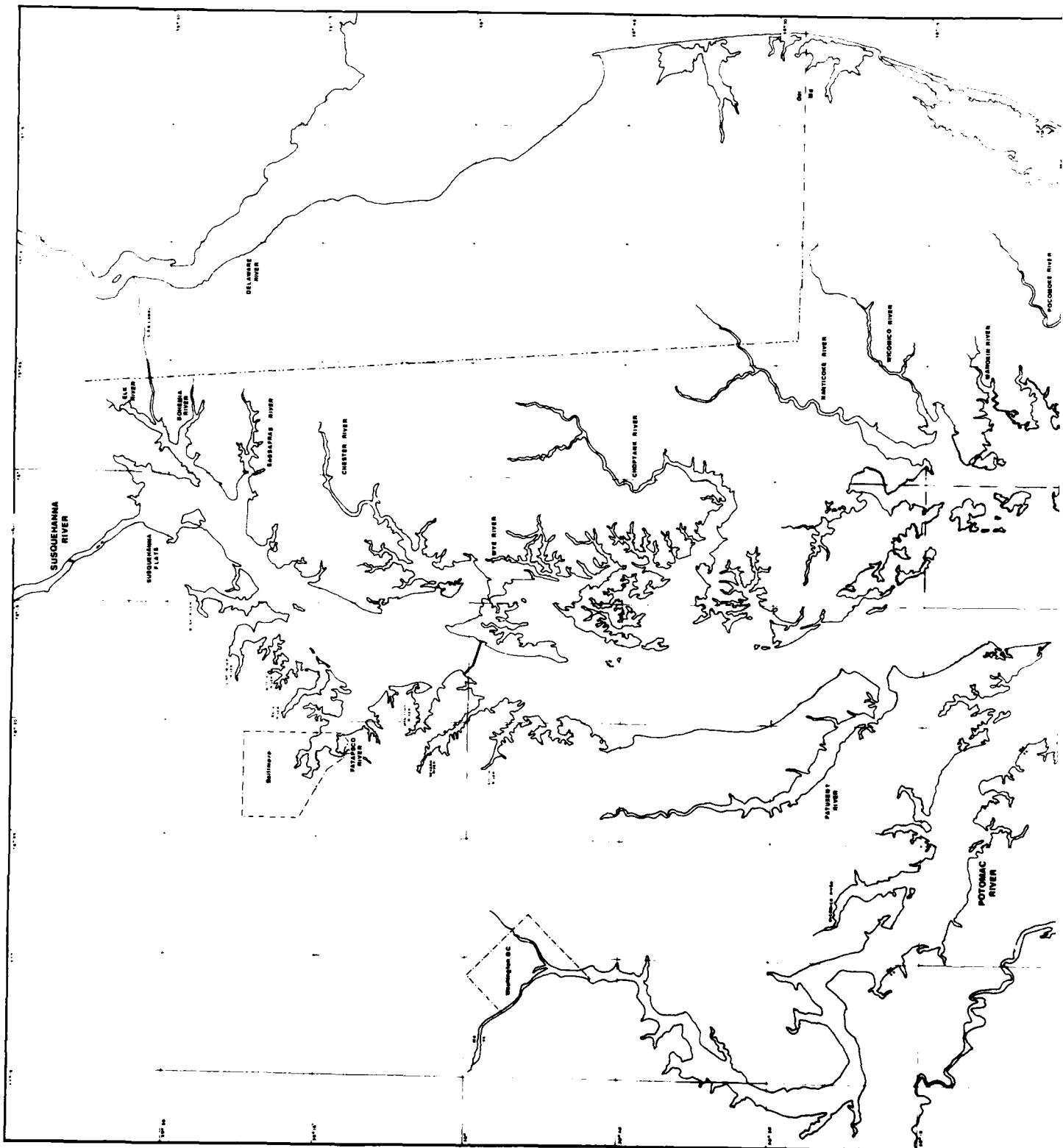
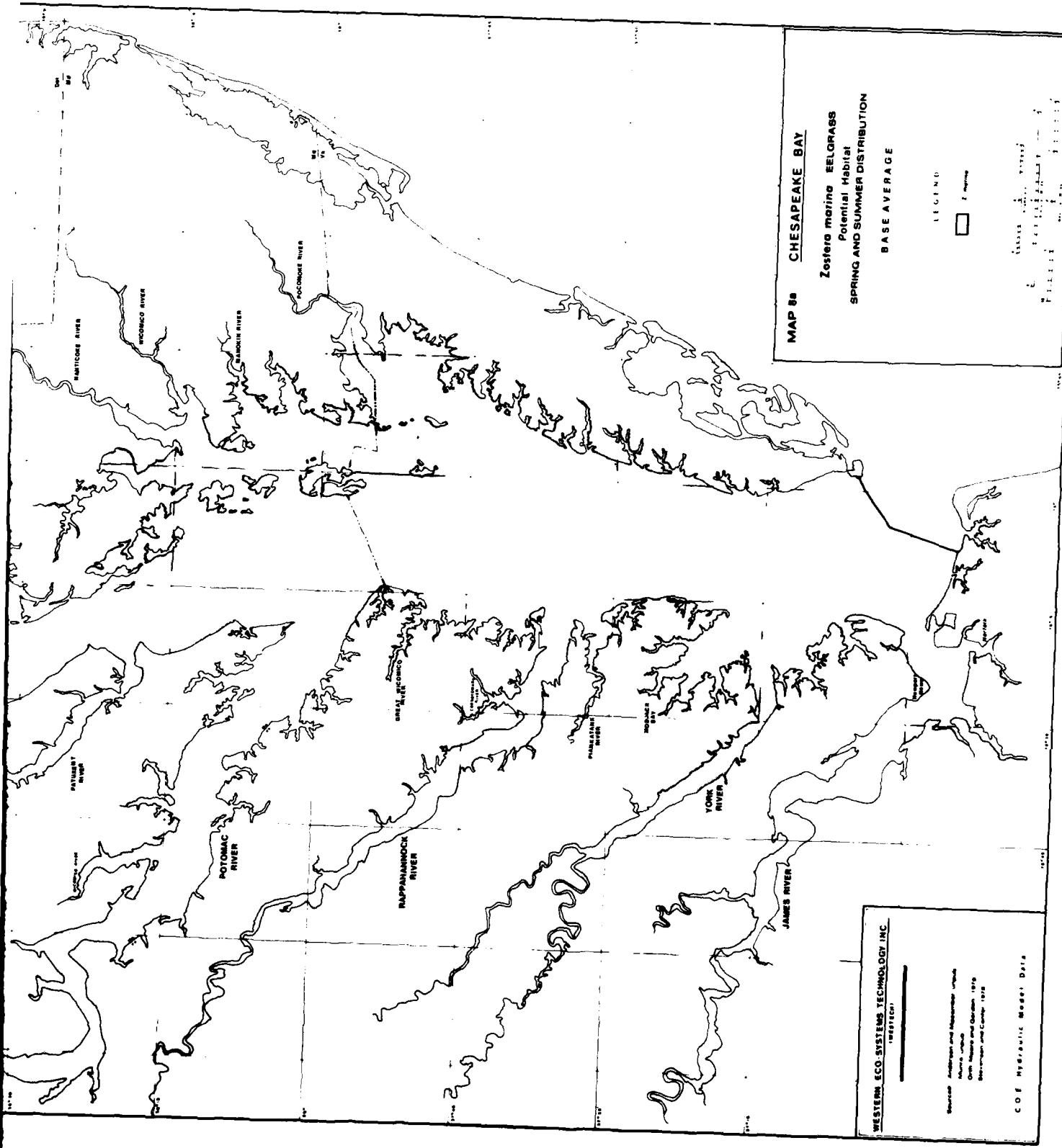
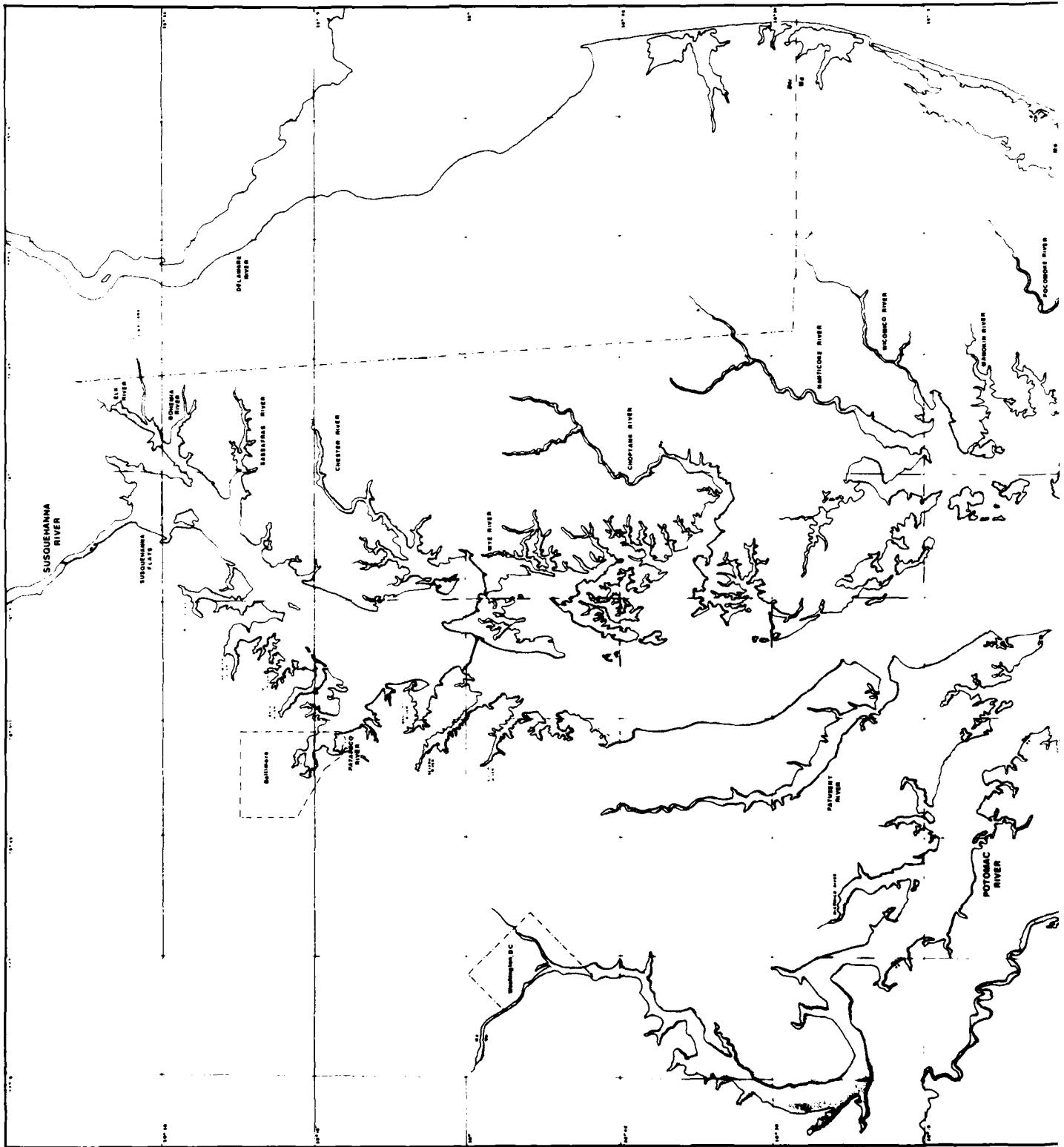
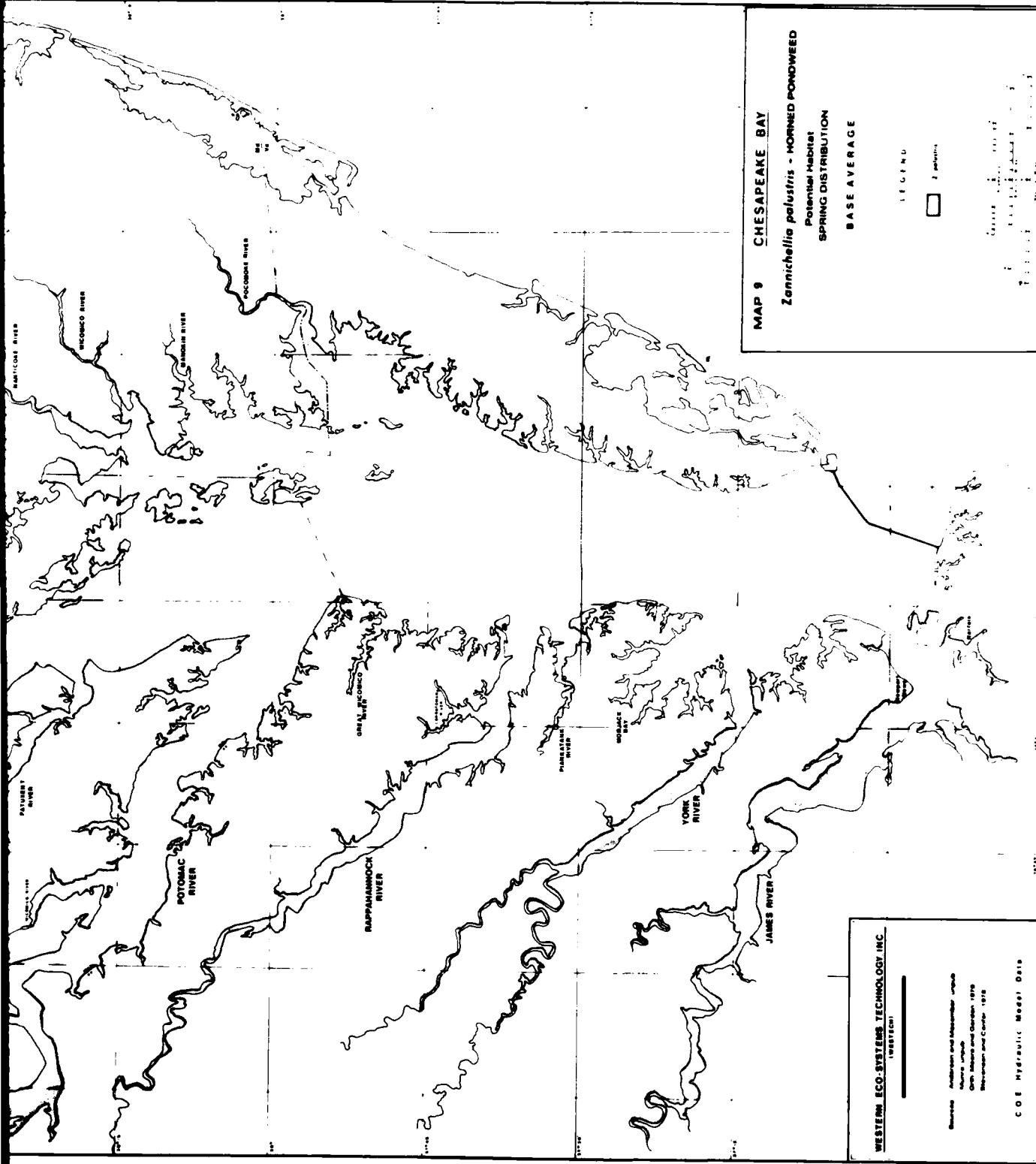
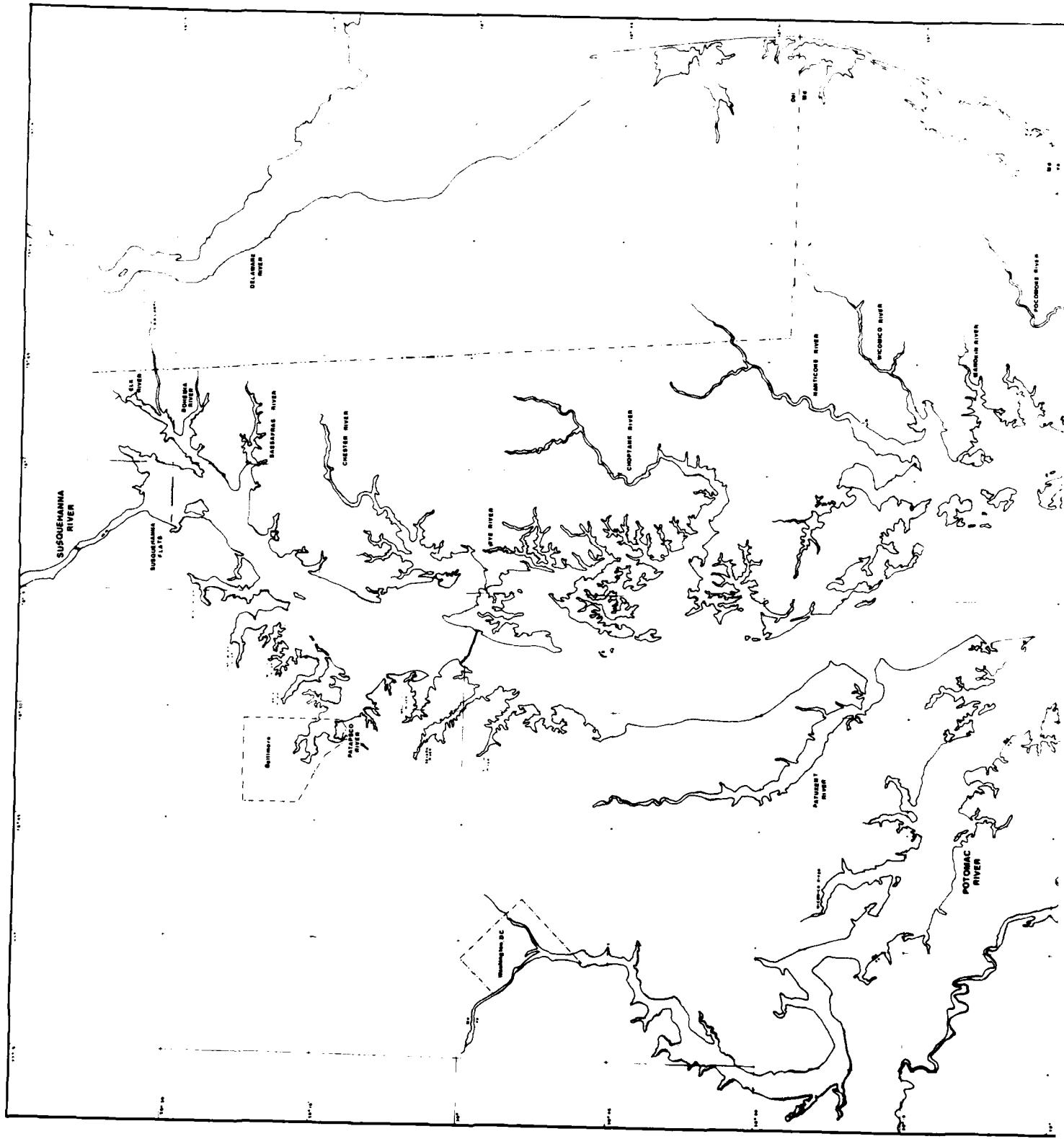


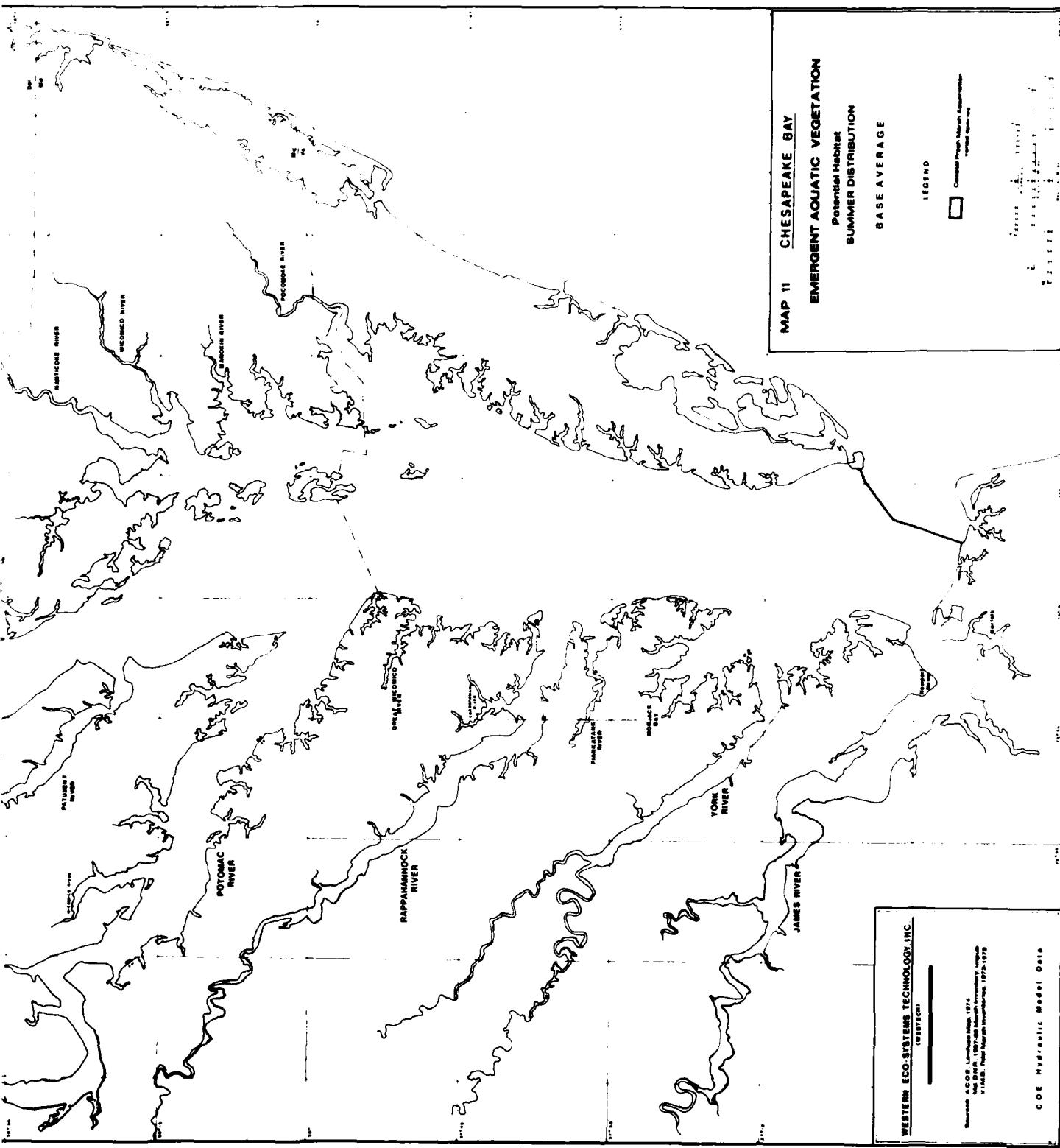
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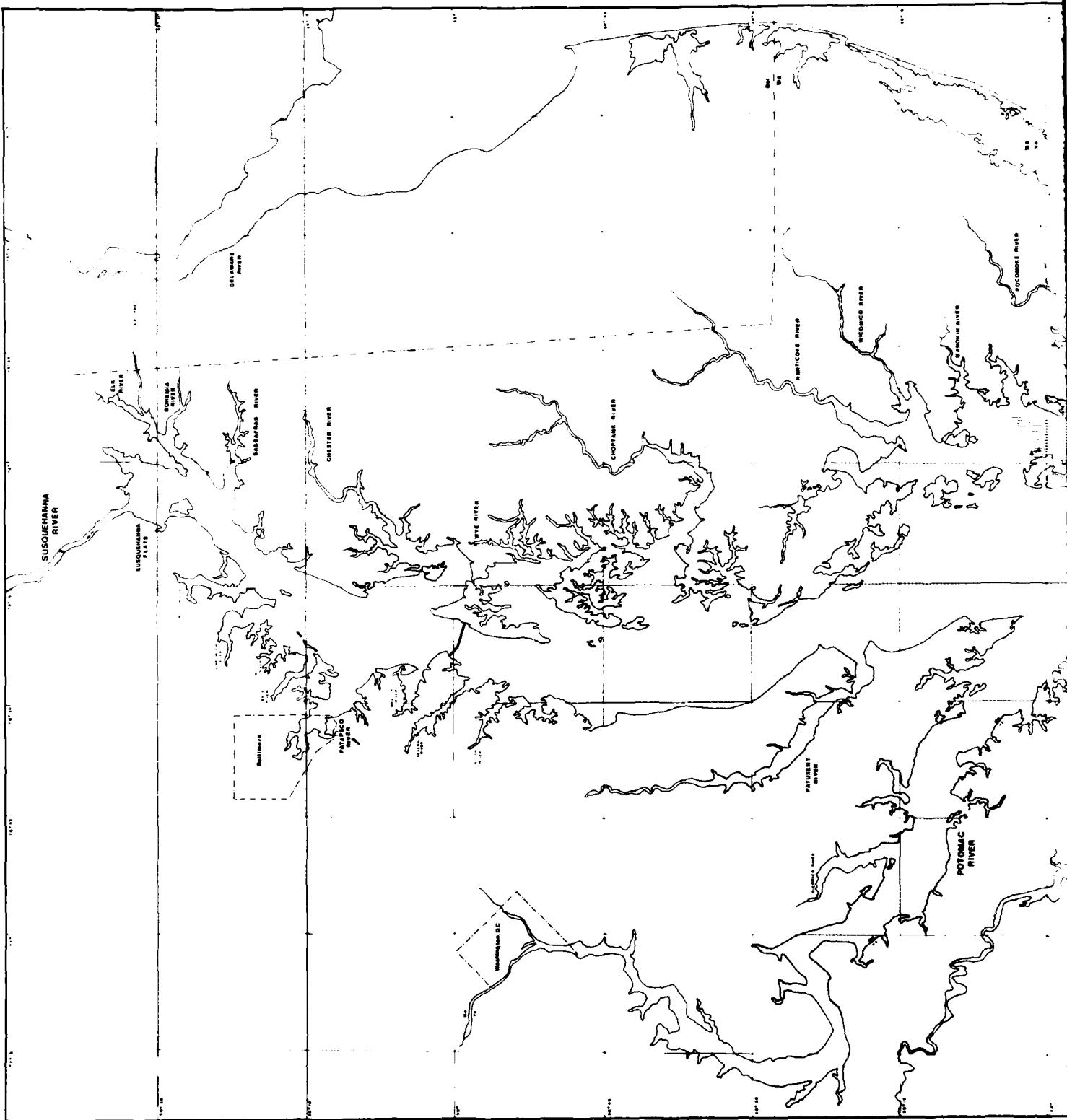












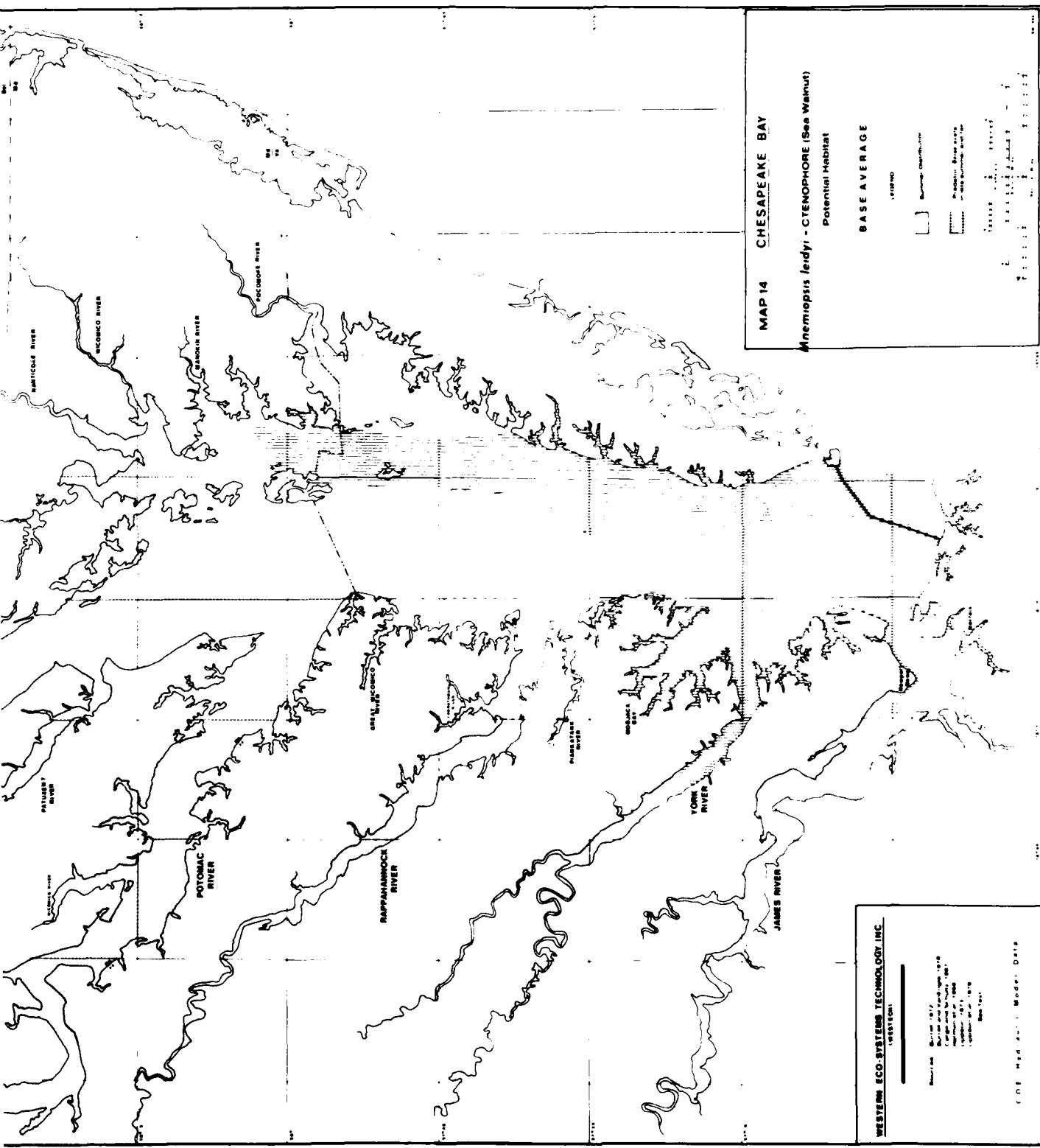
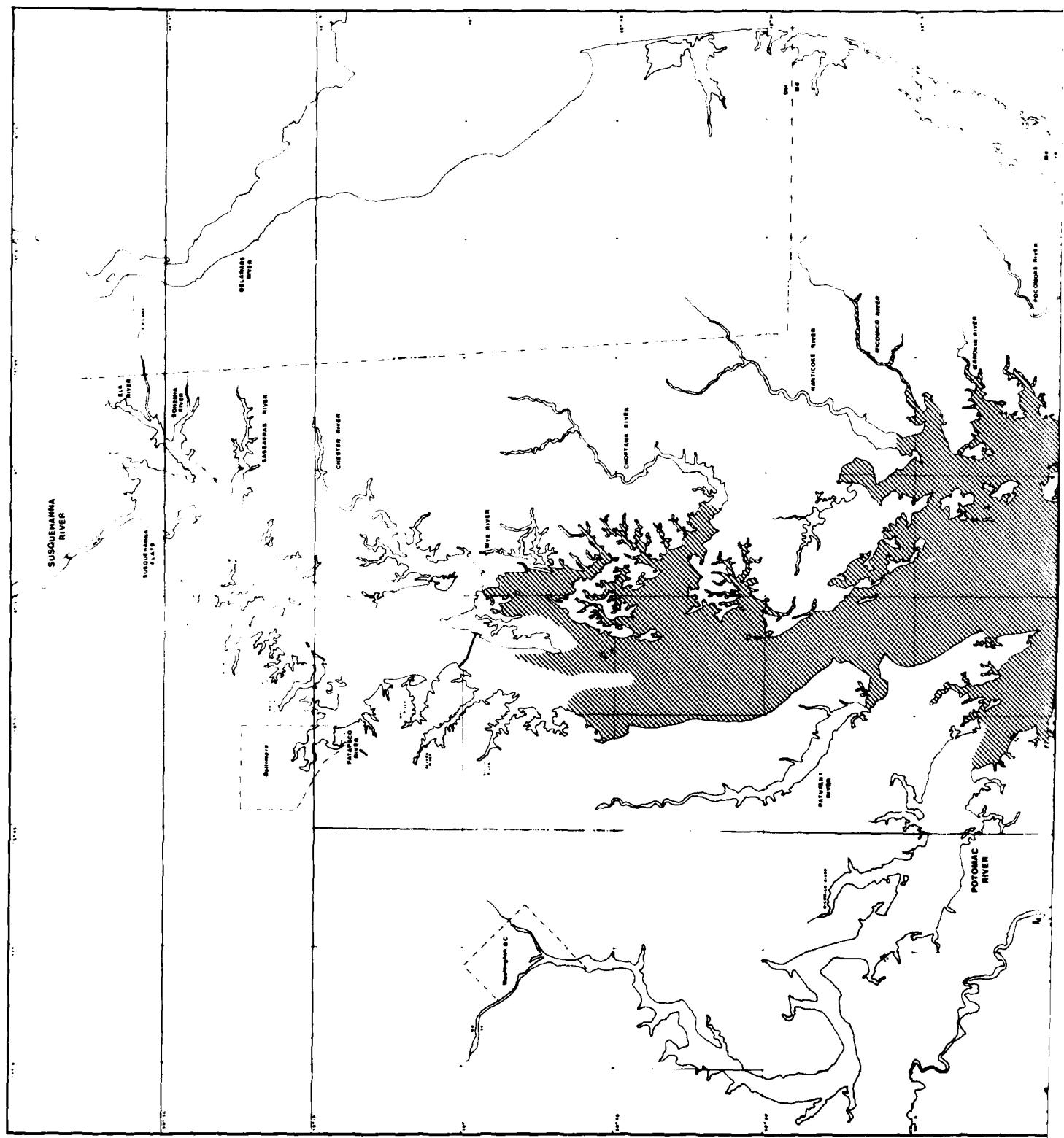
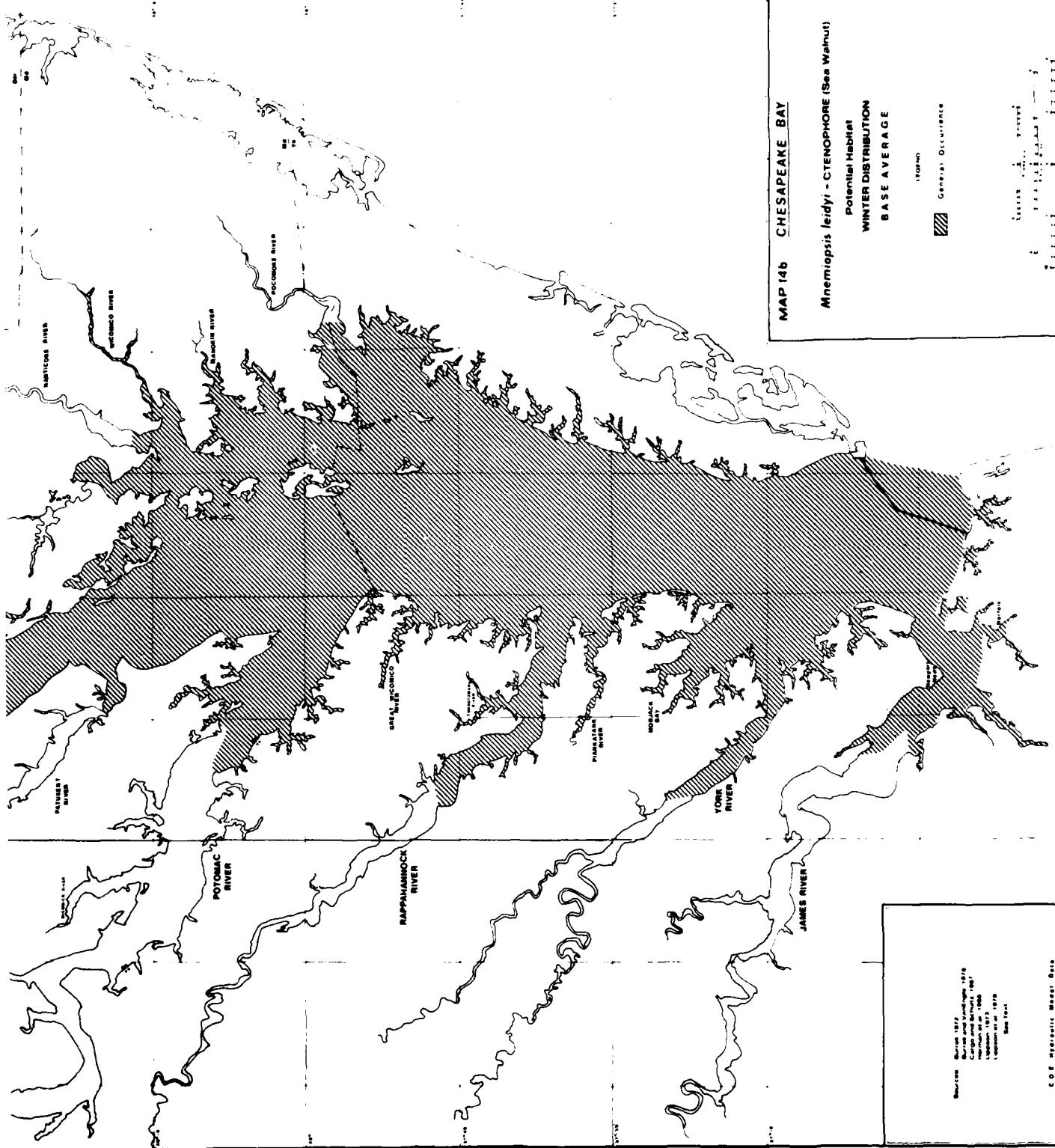
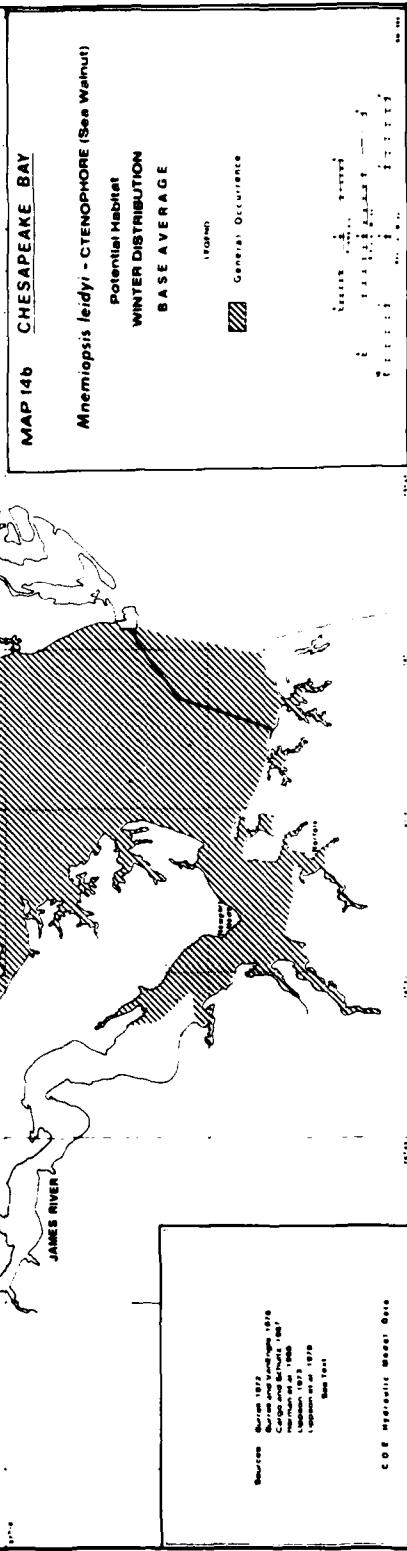


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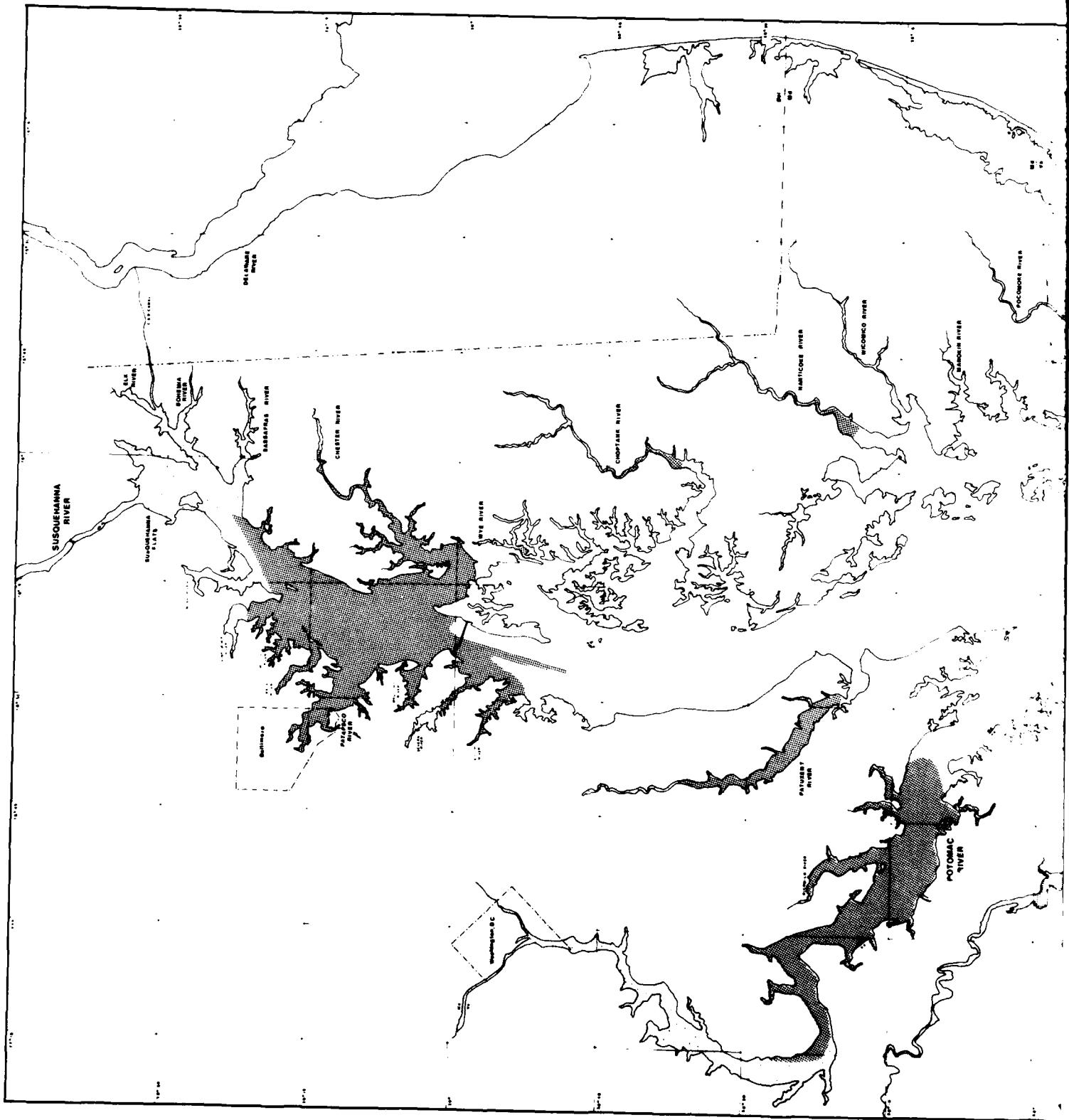
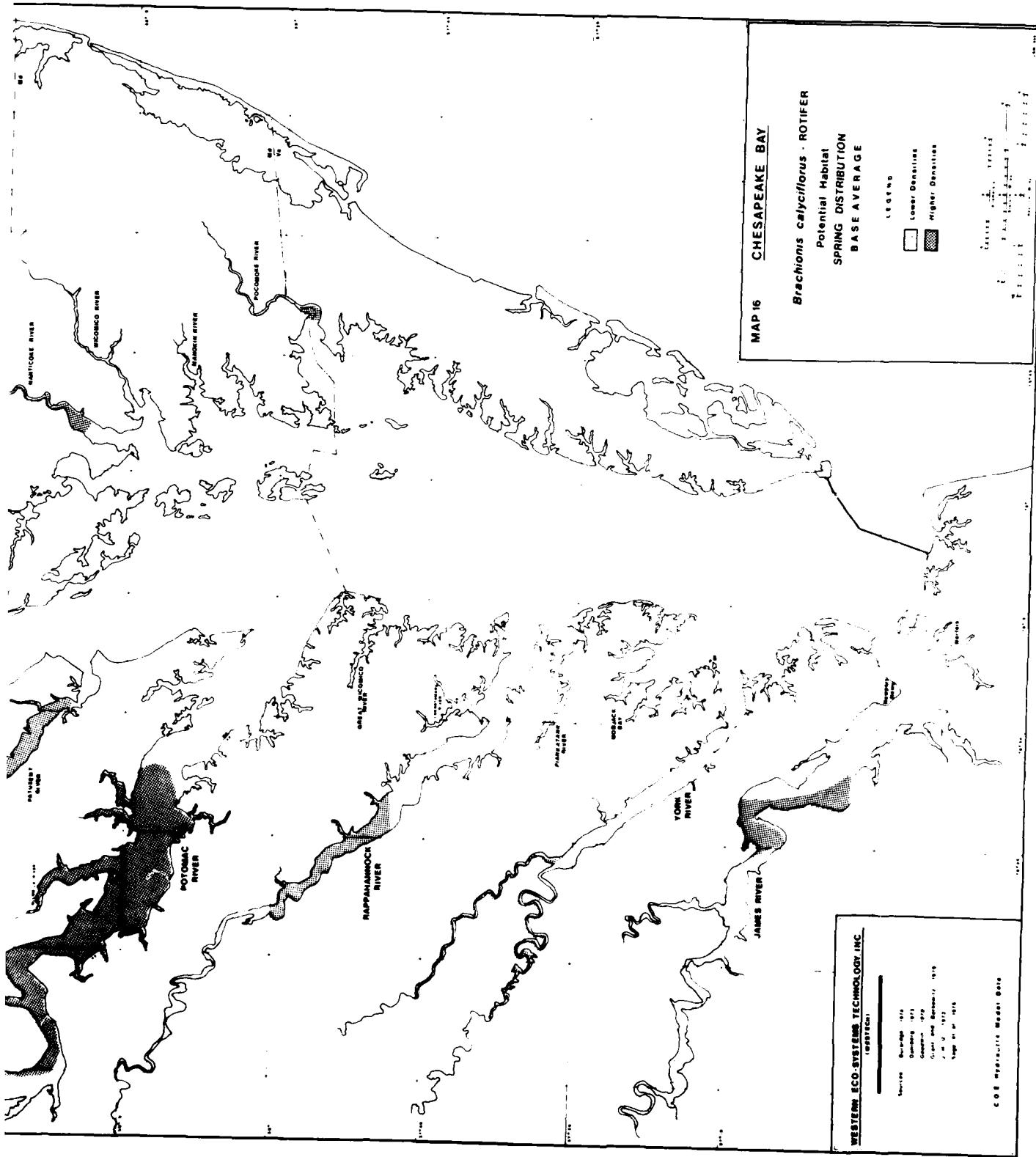


Plate 16



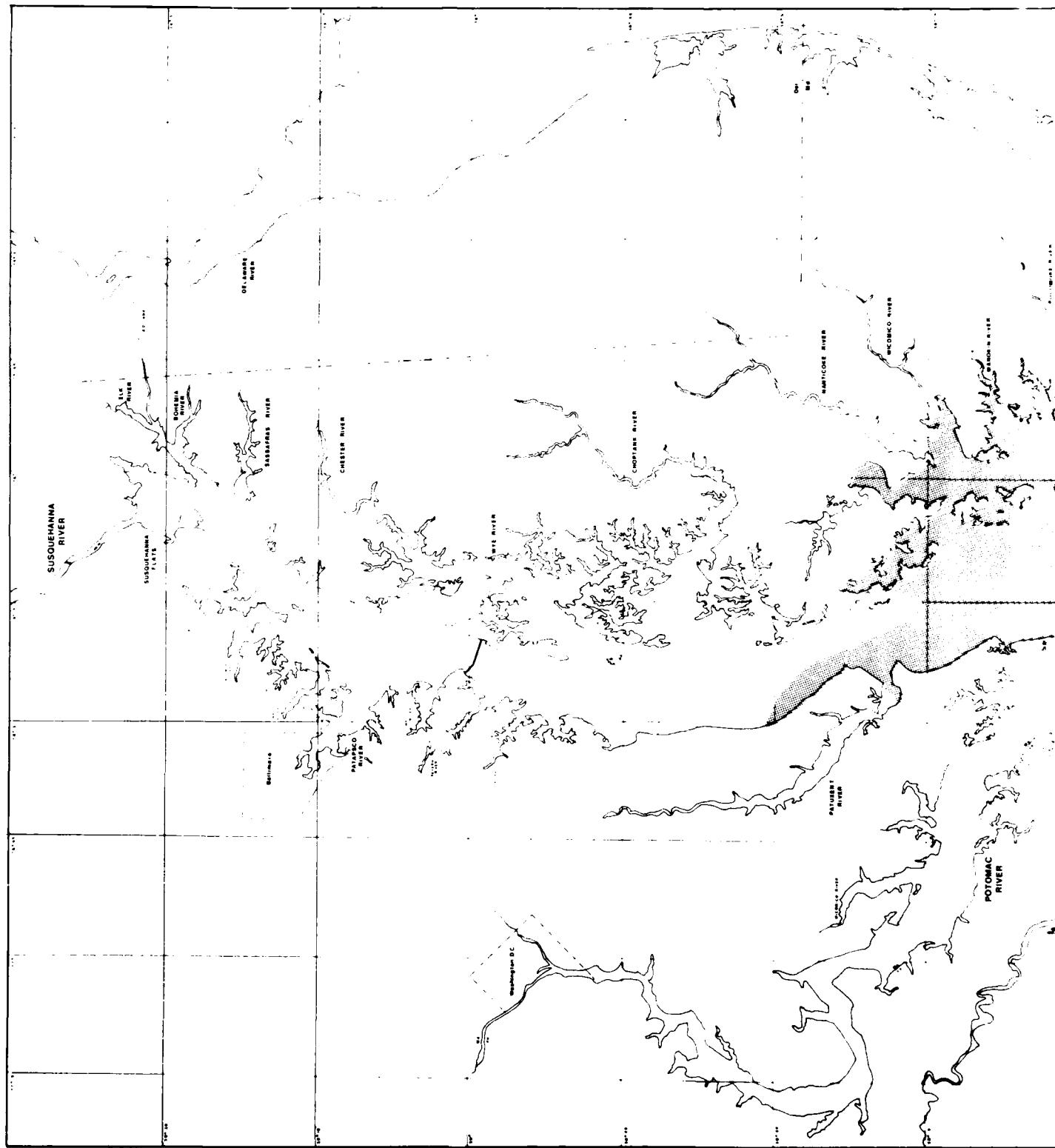
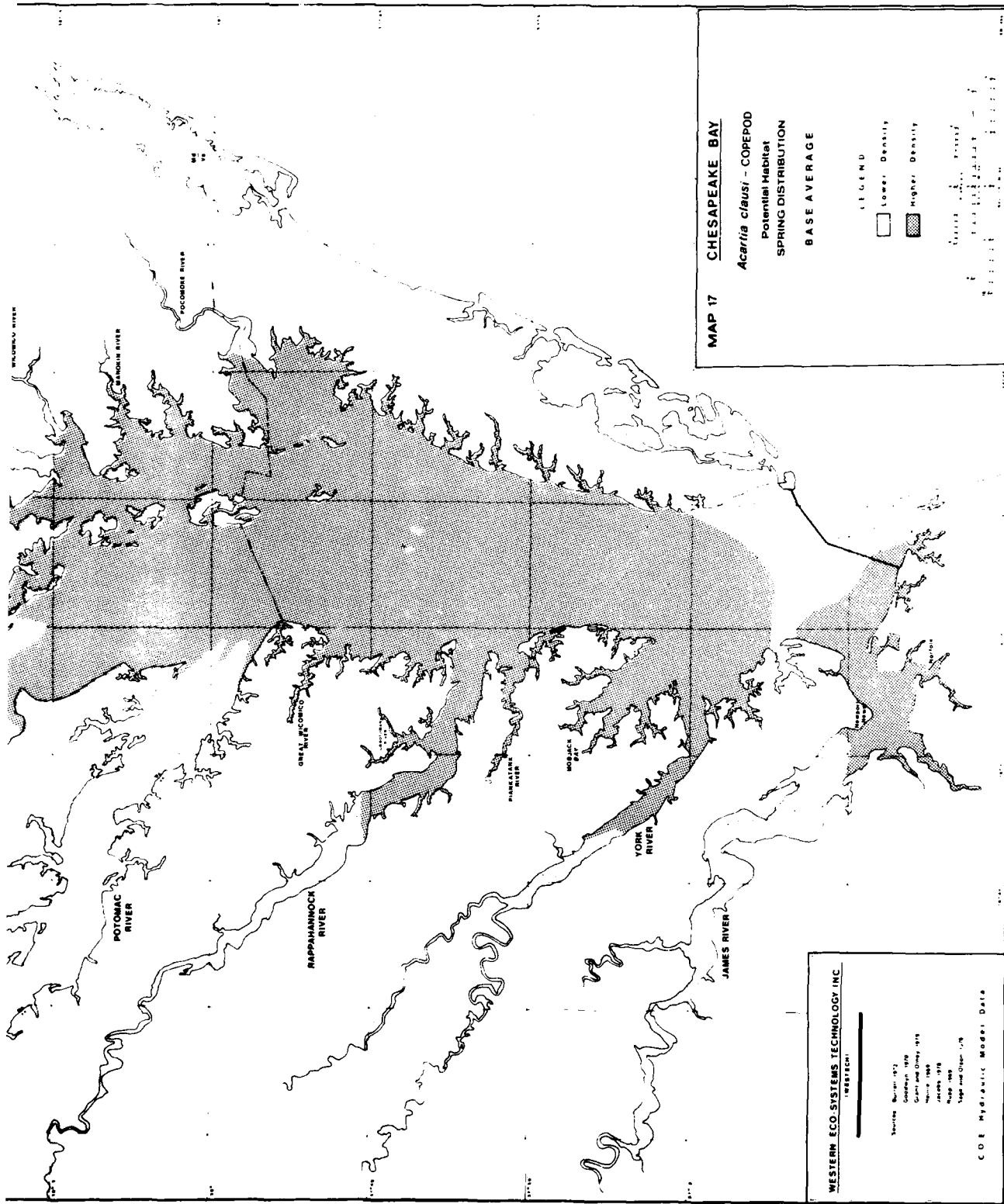
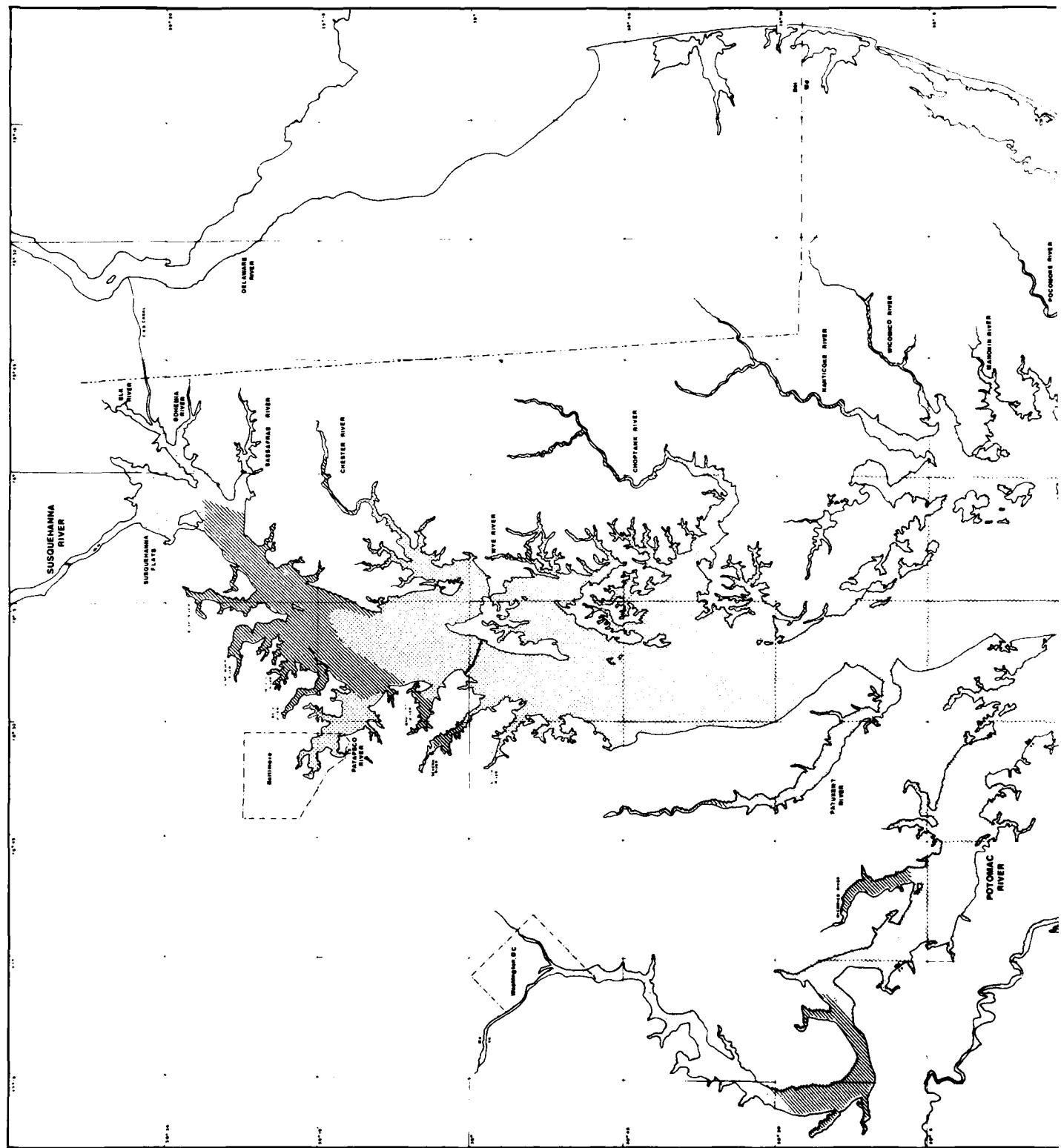
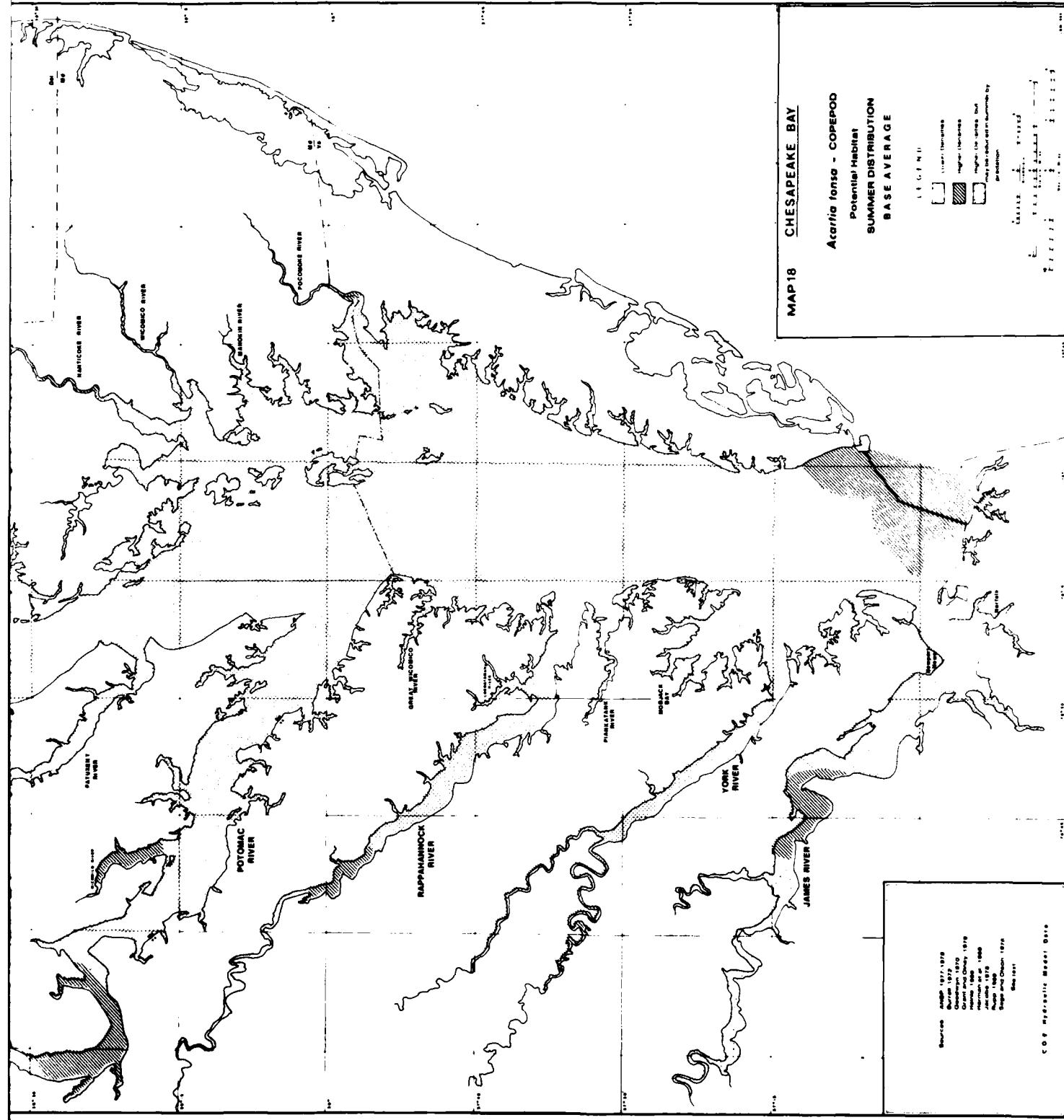
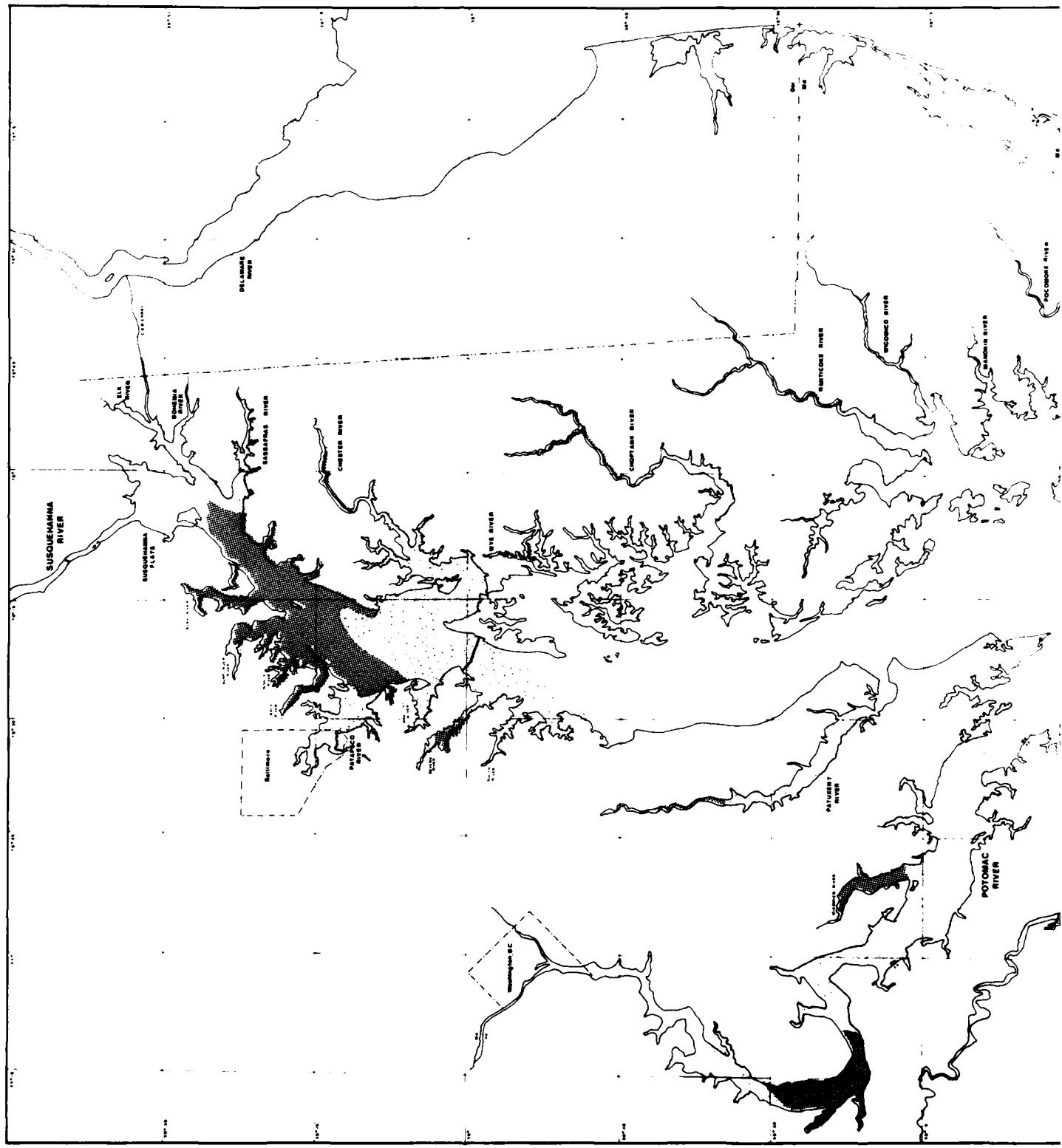


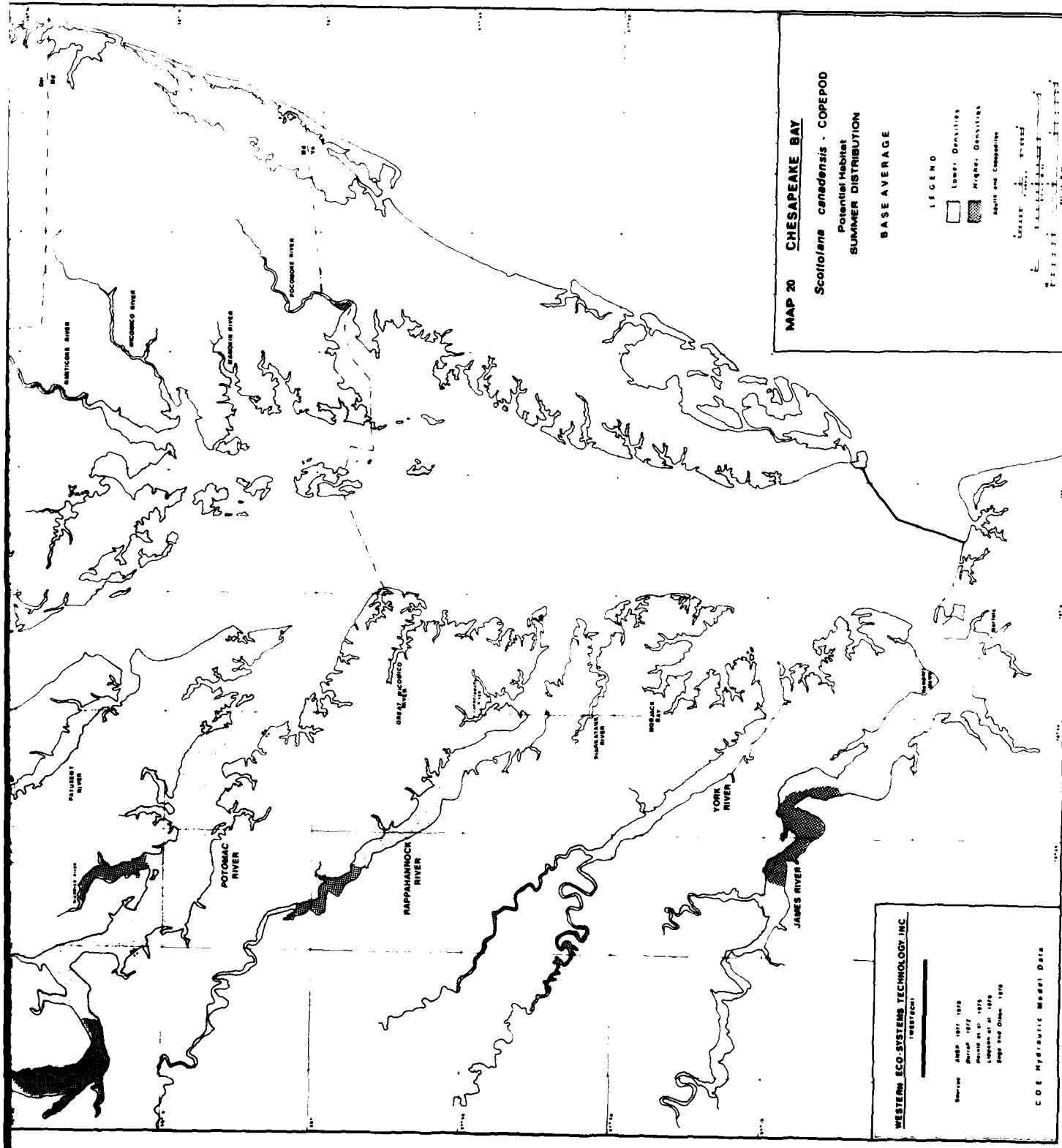
Plate 17











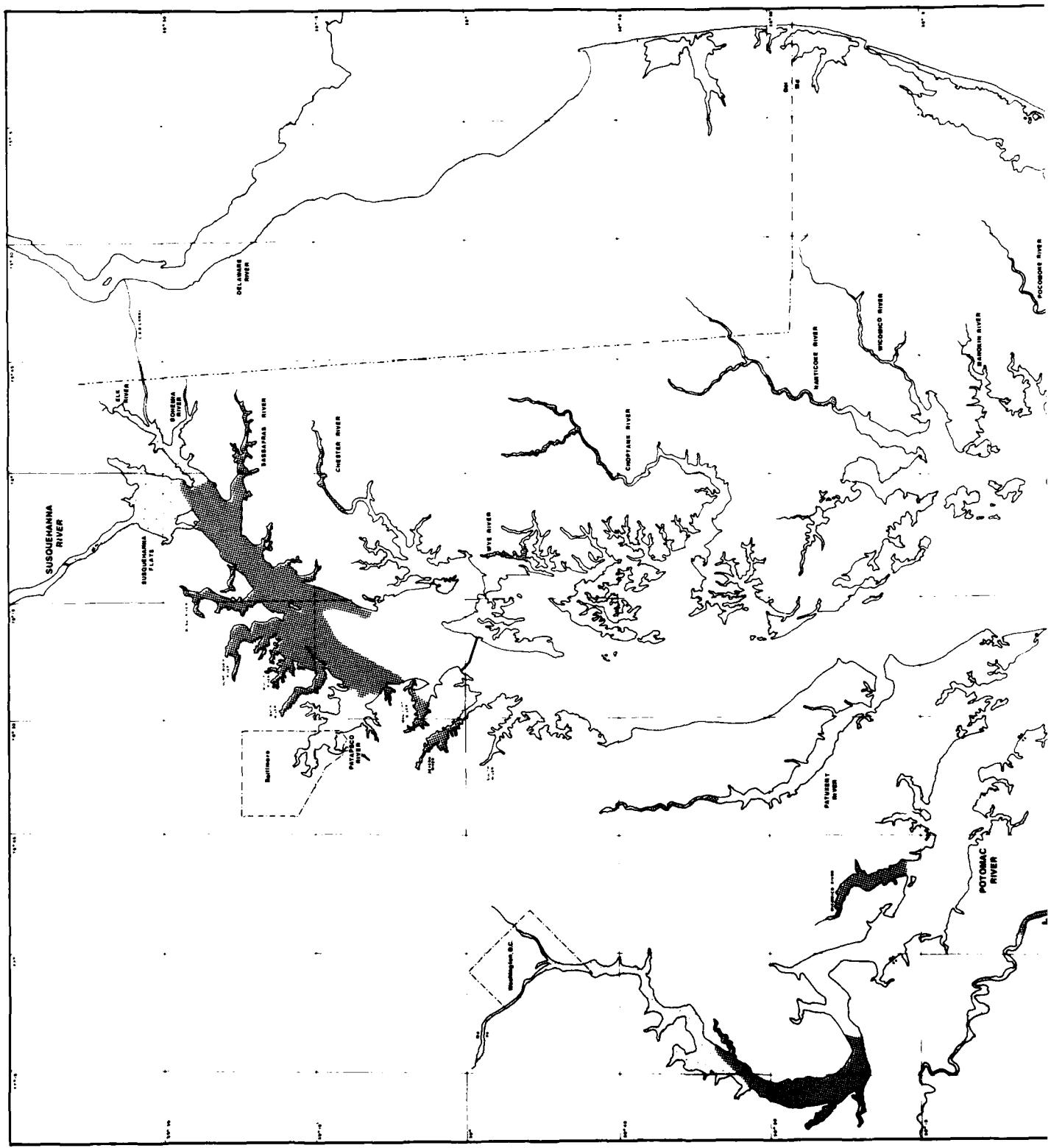
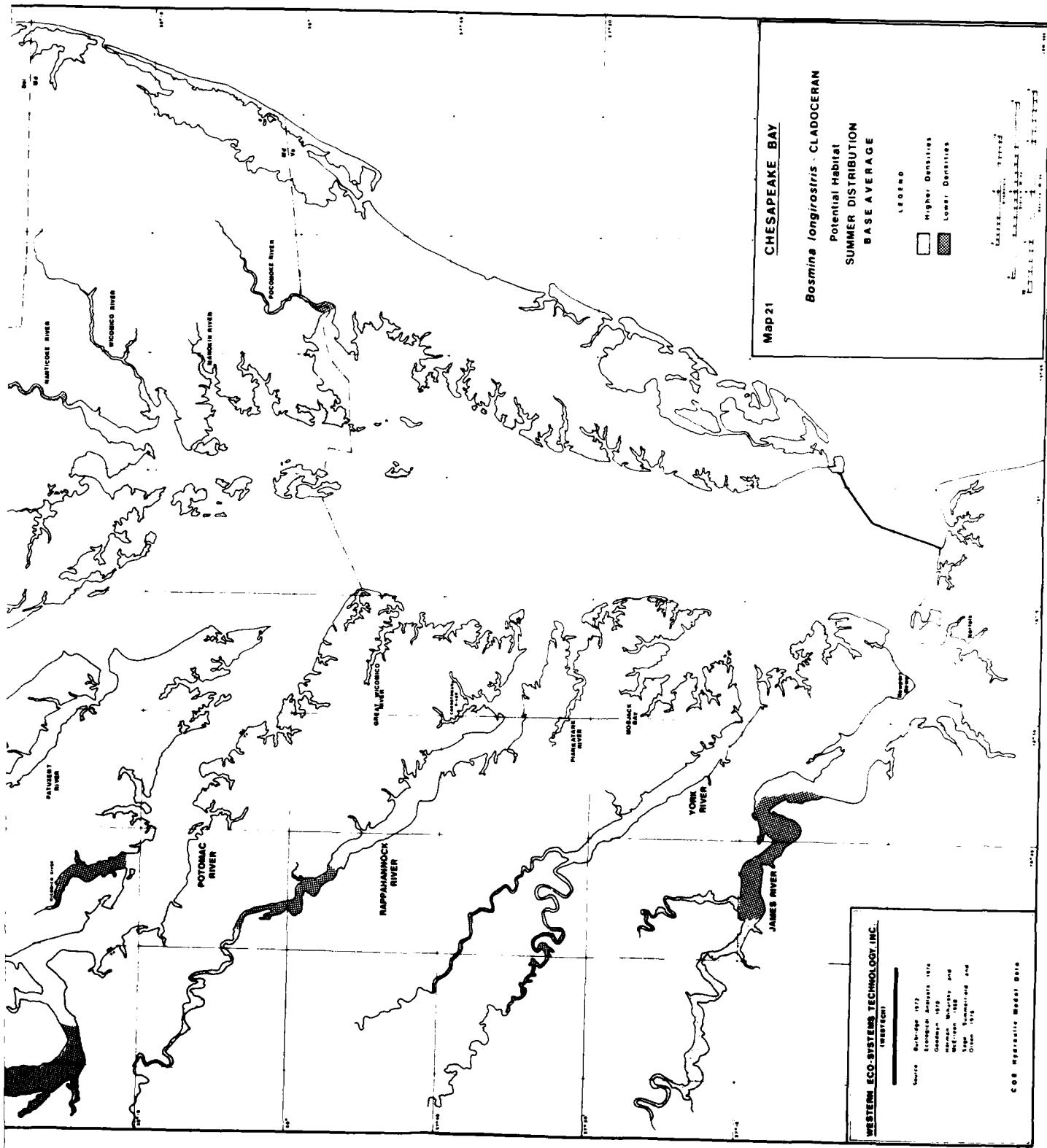
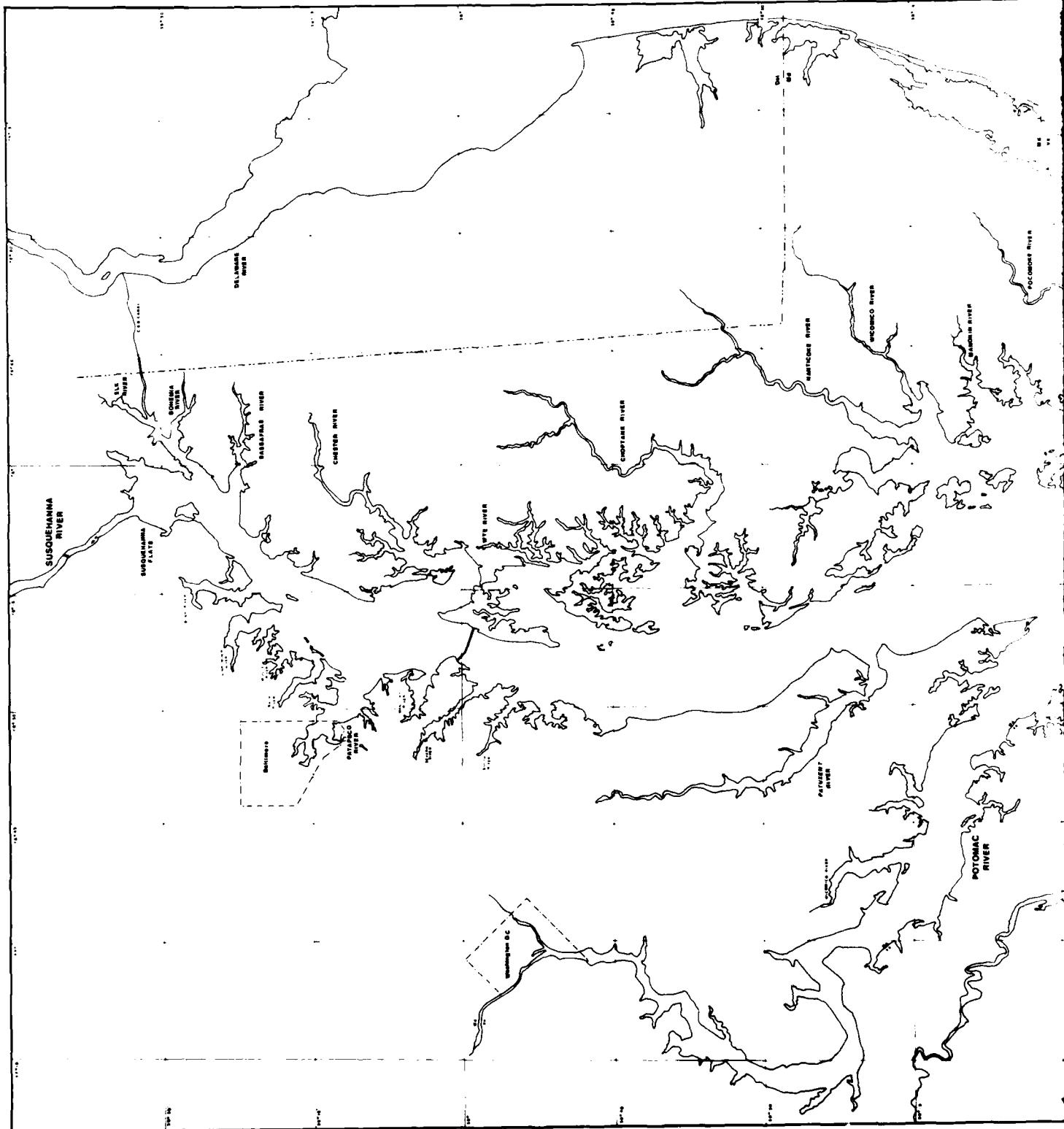
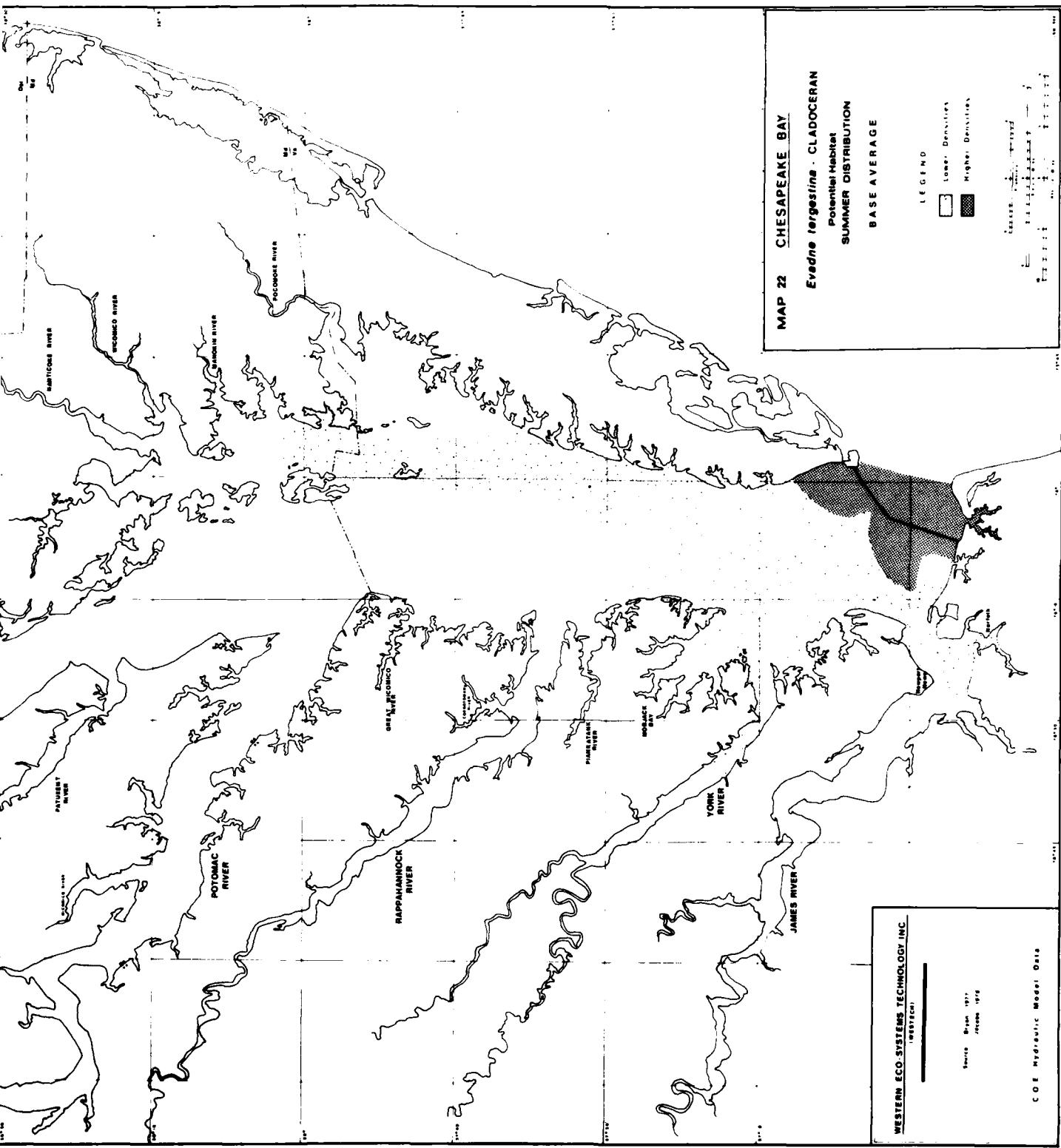


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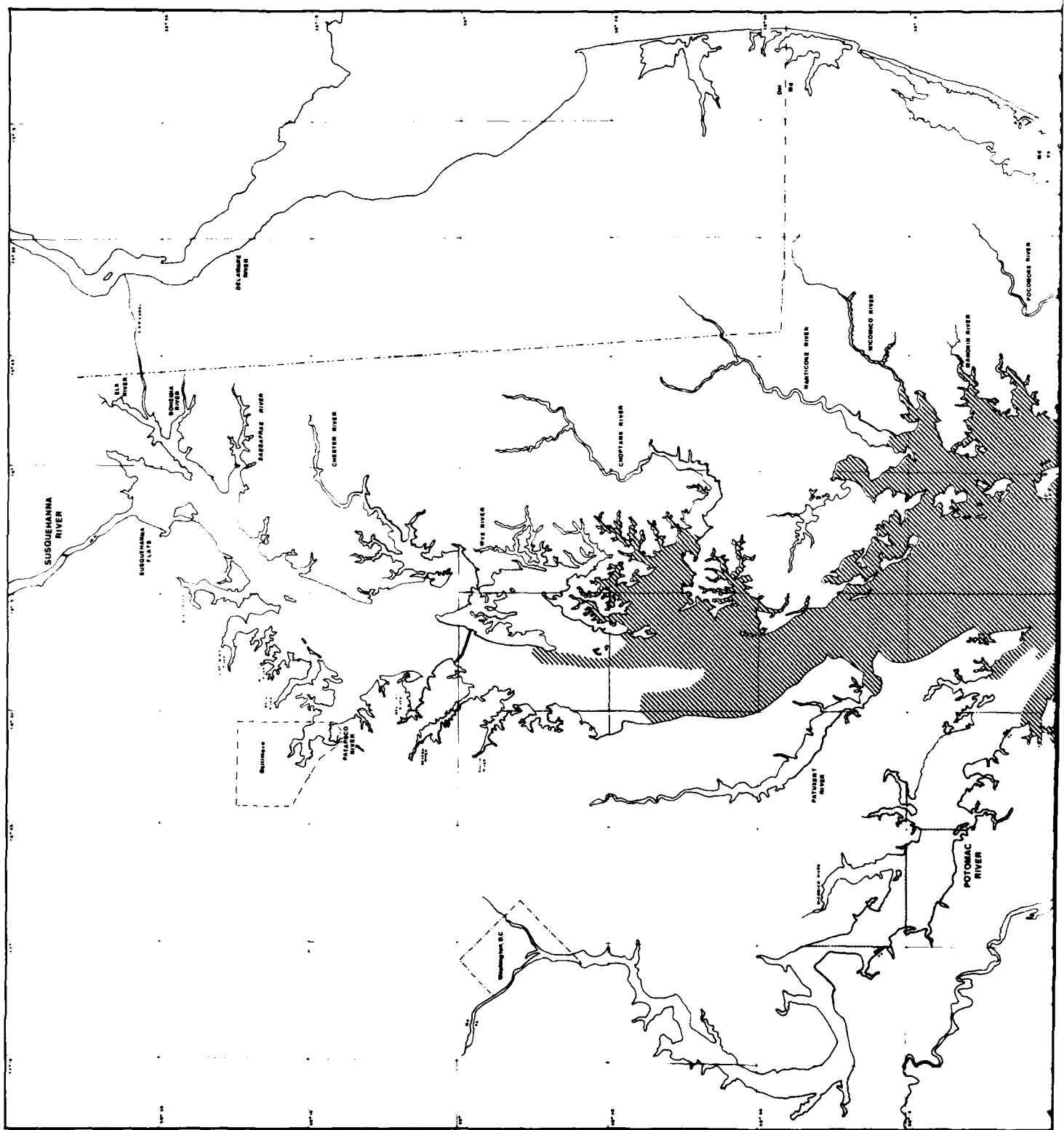
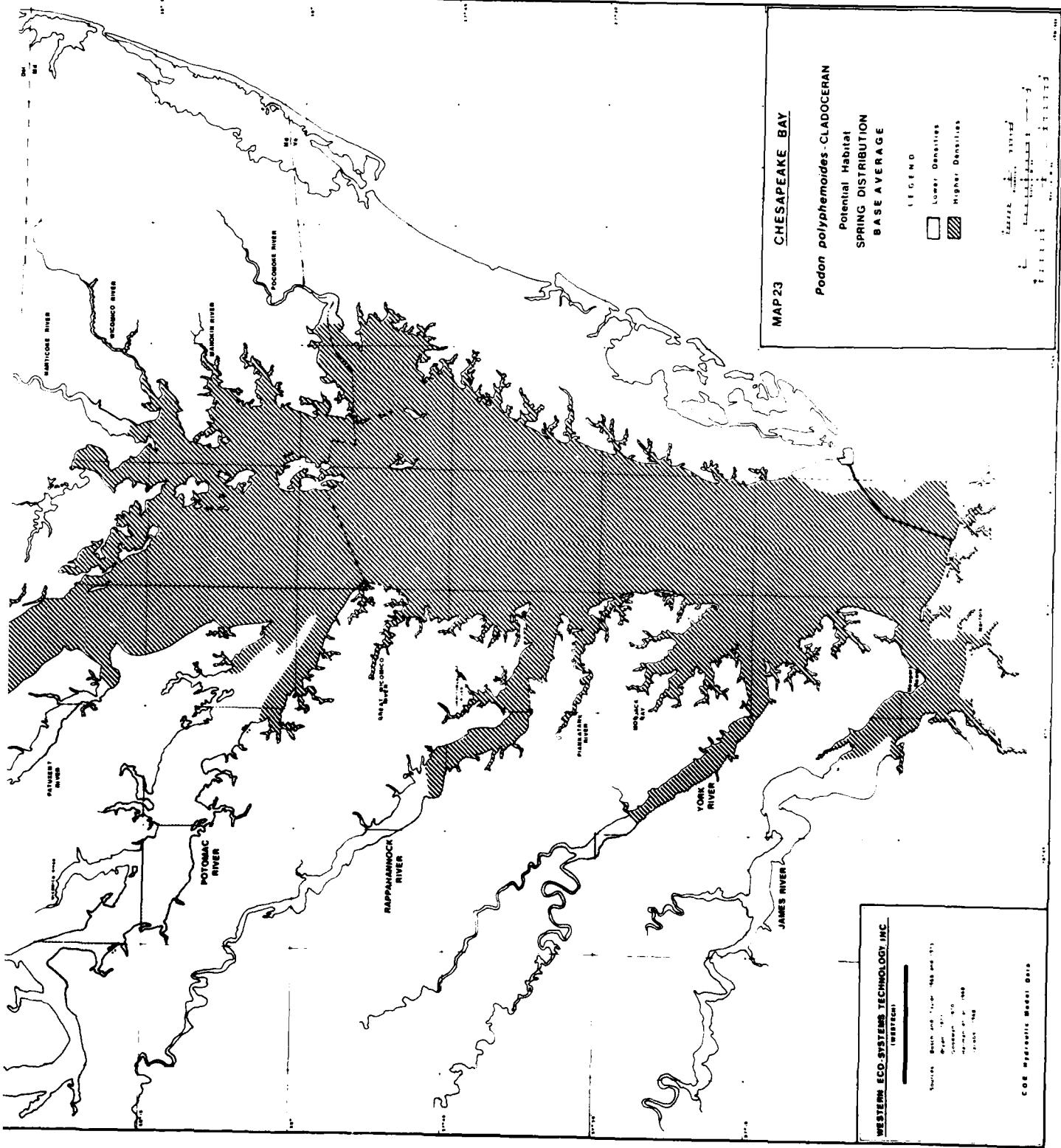
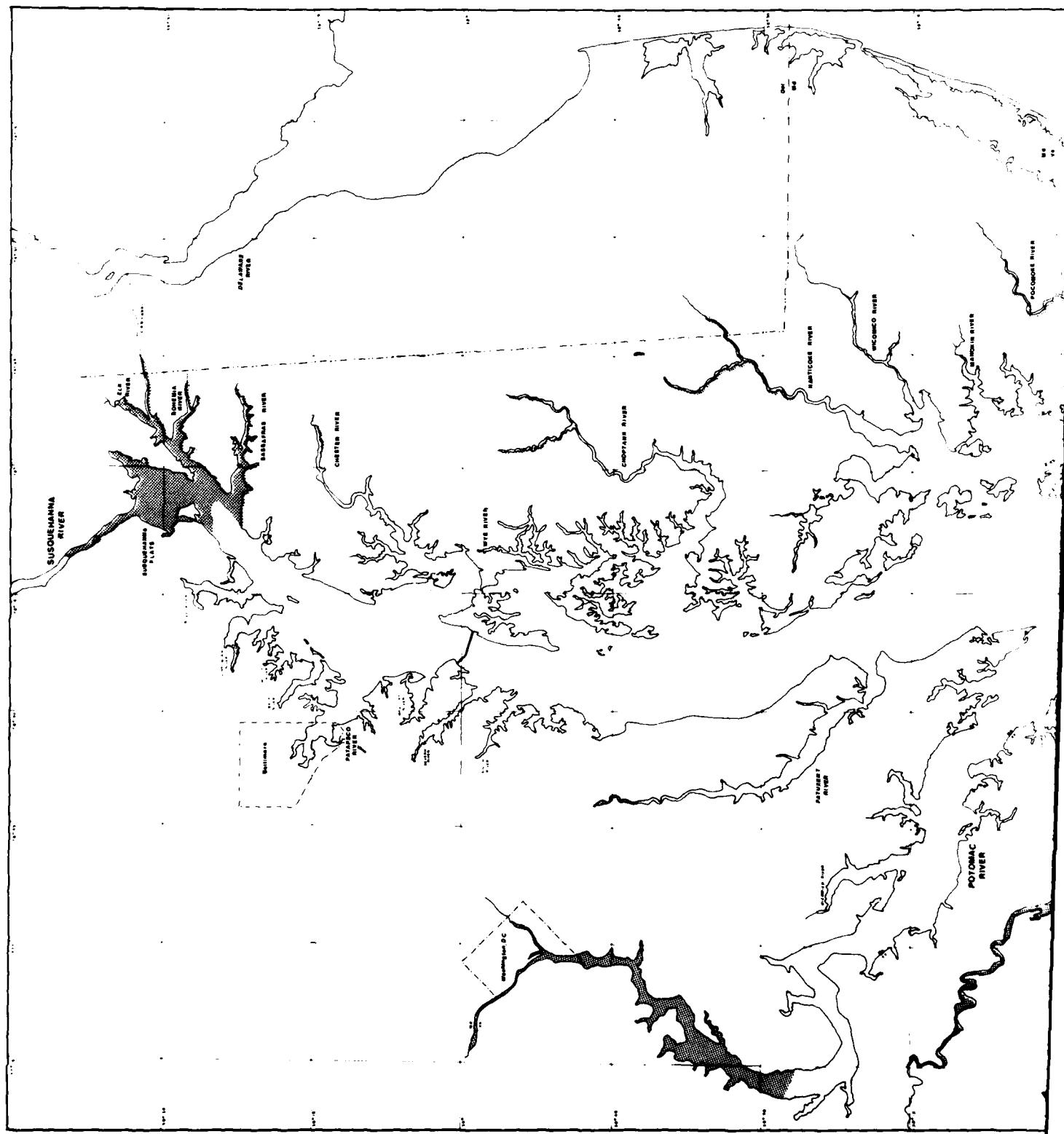
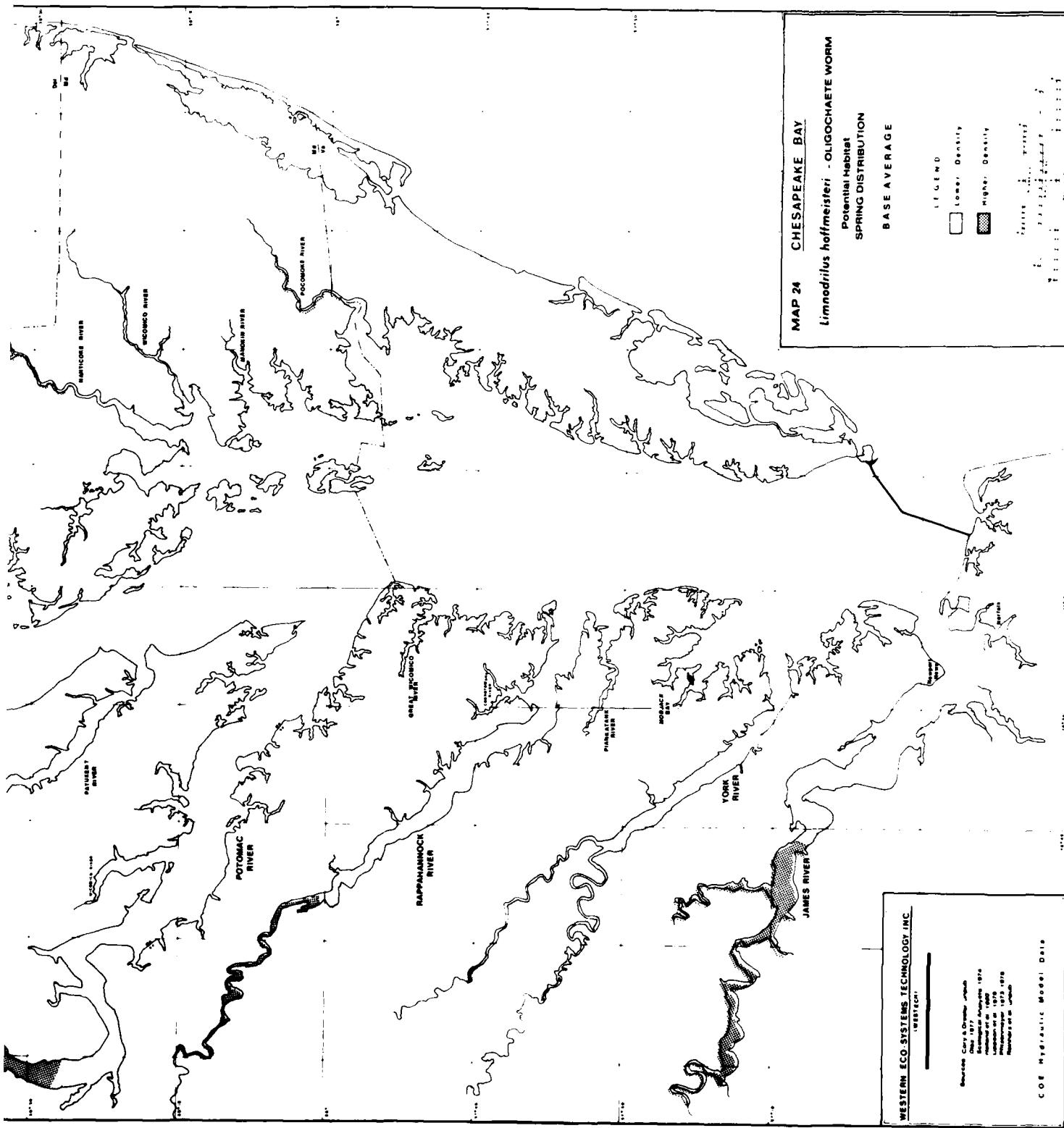


Plate 22









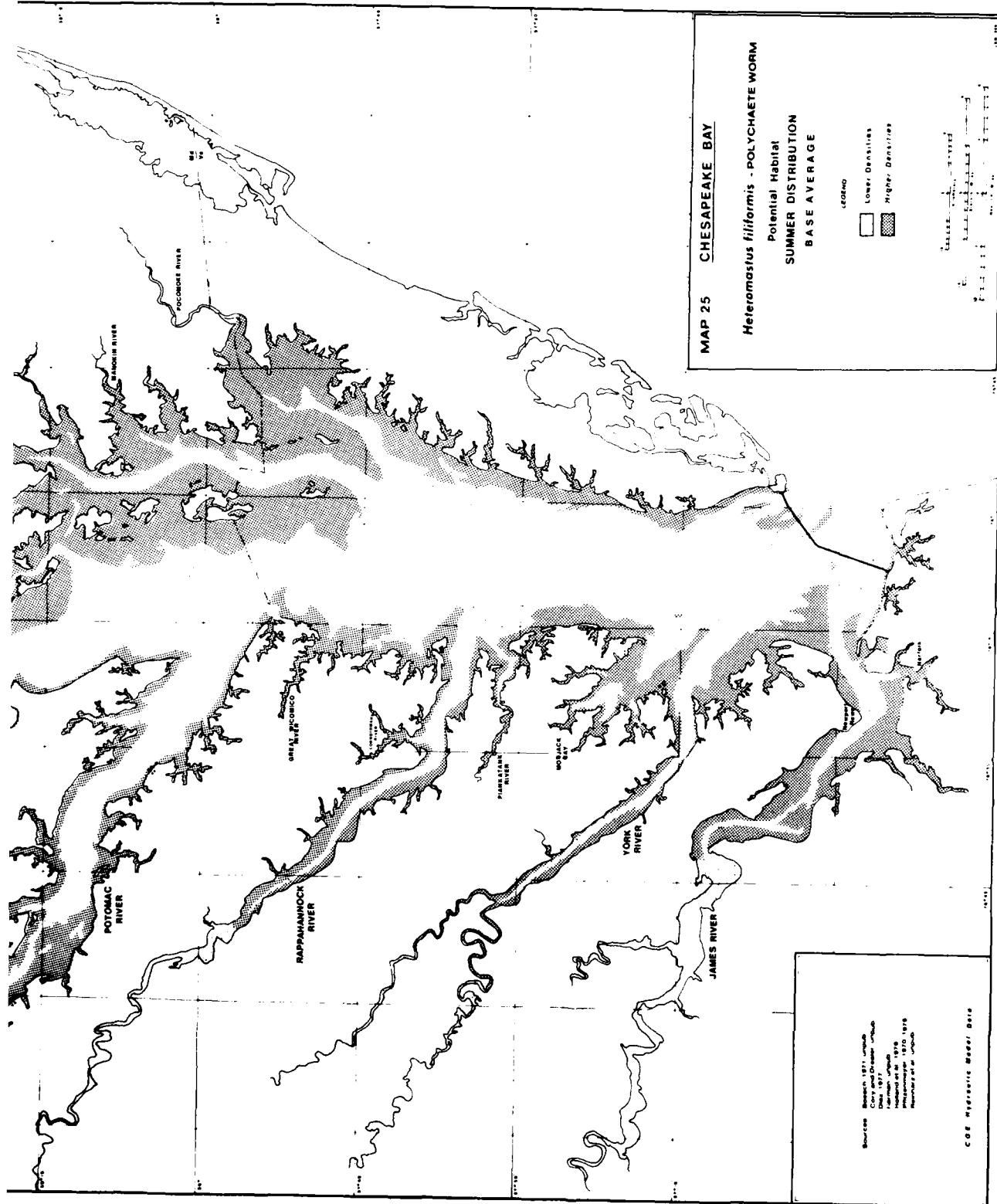
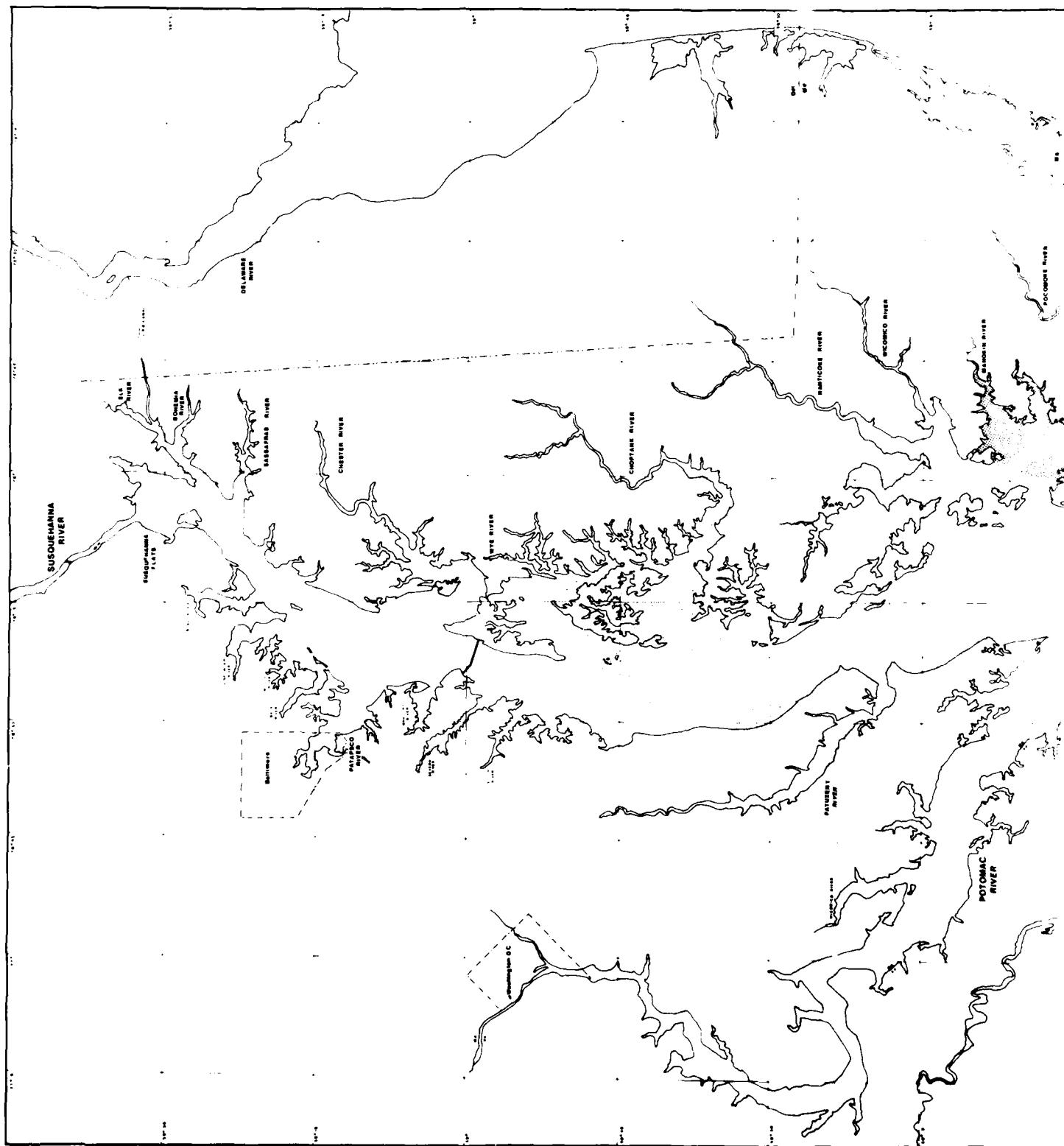
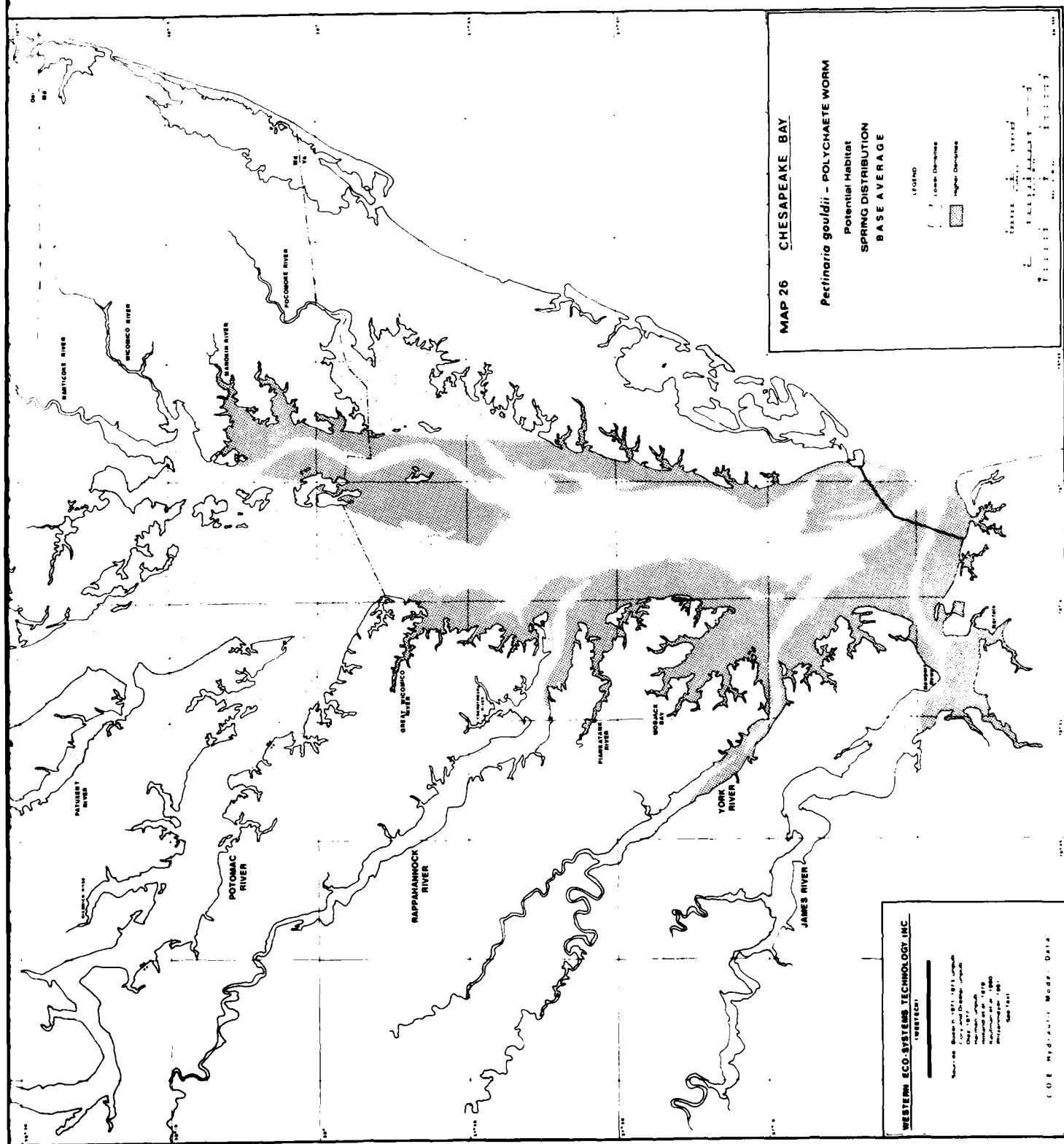
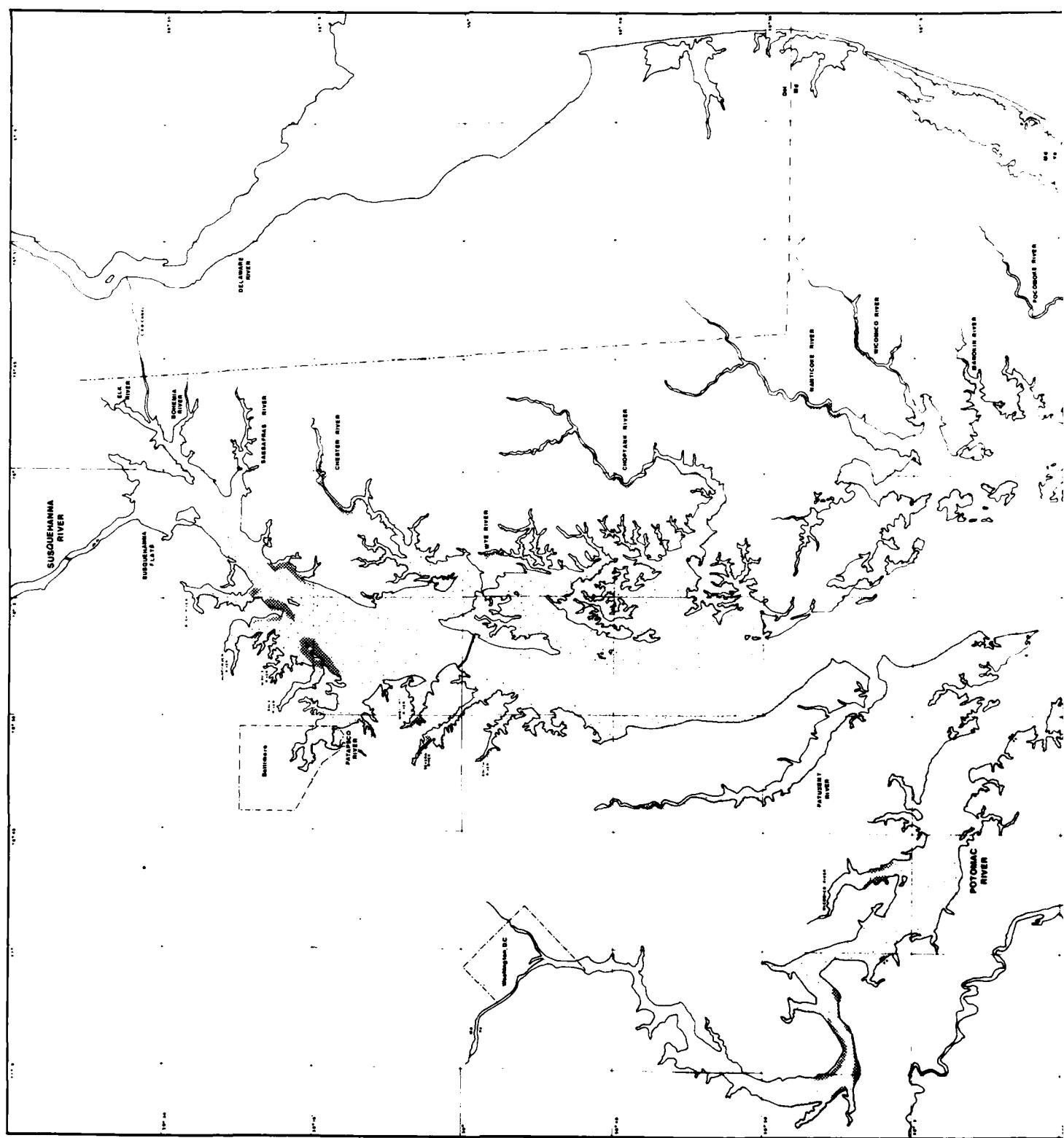
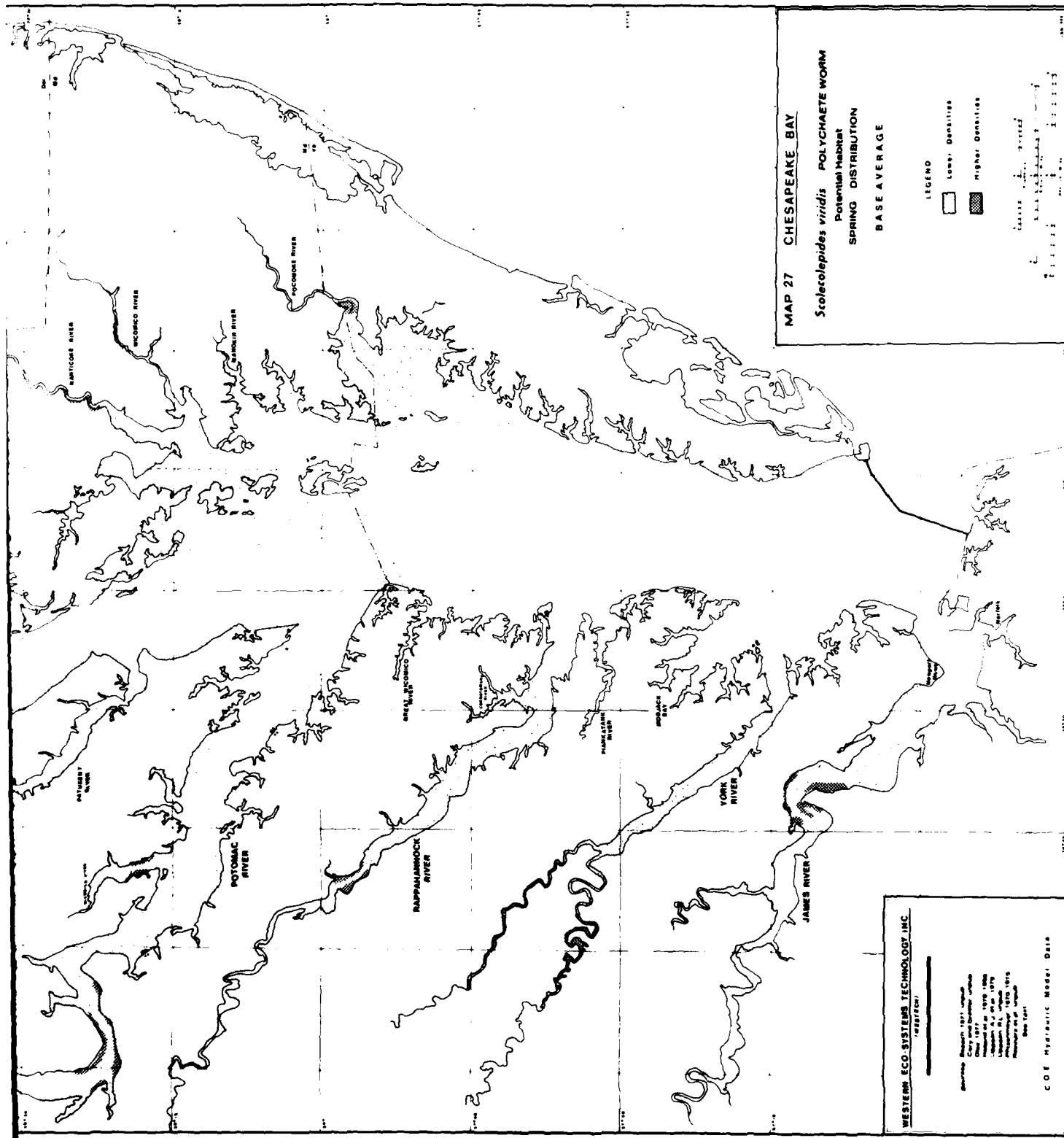


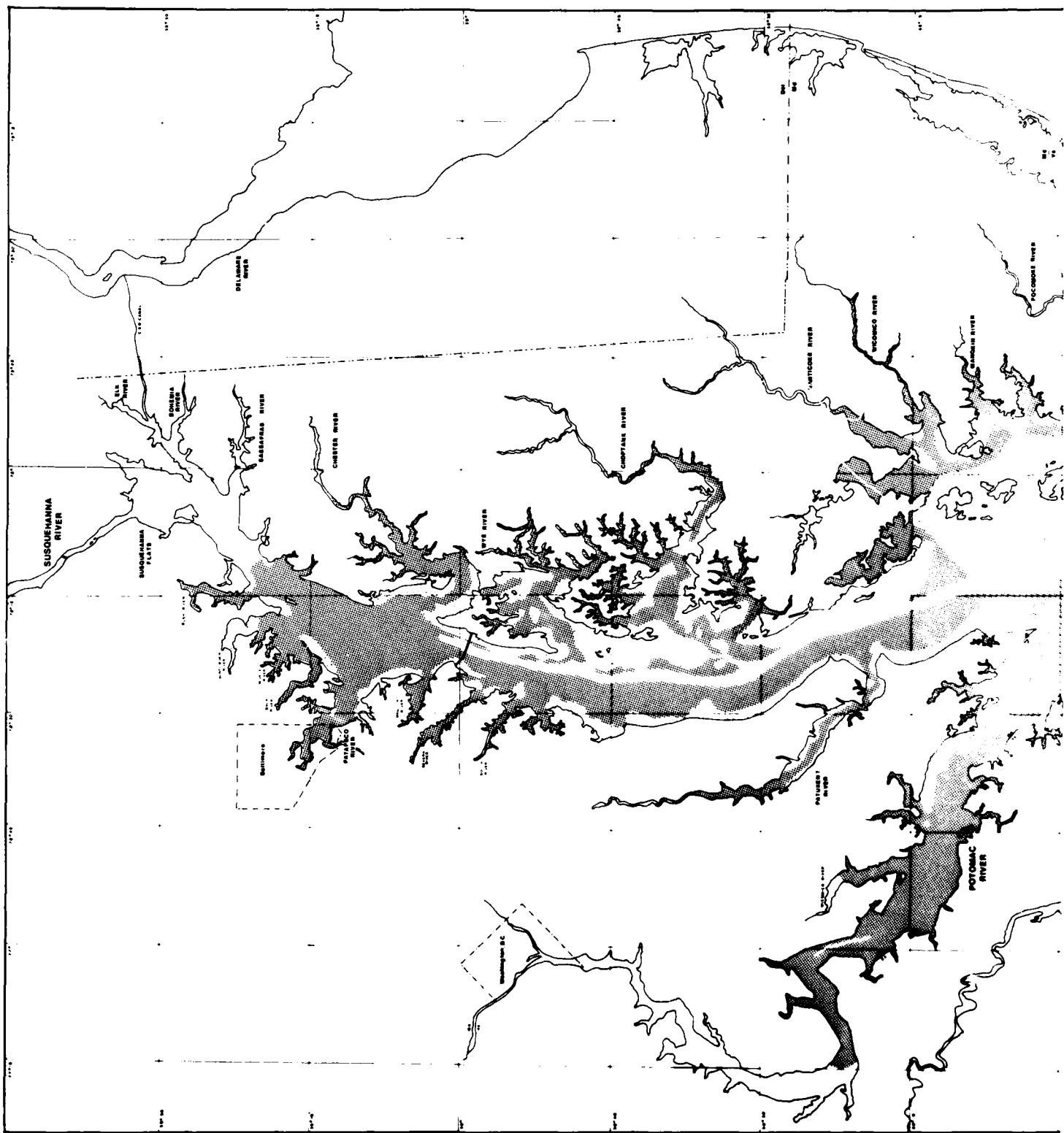
Plate 24

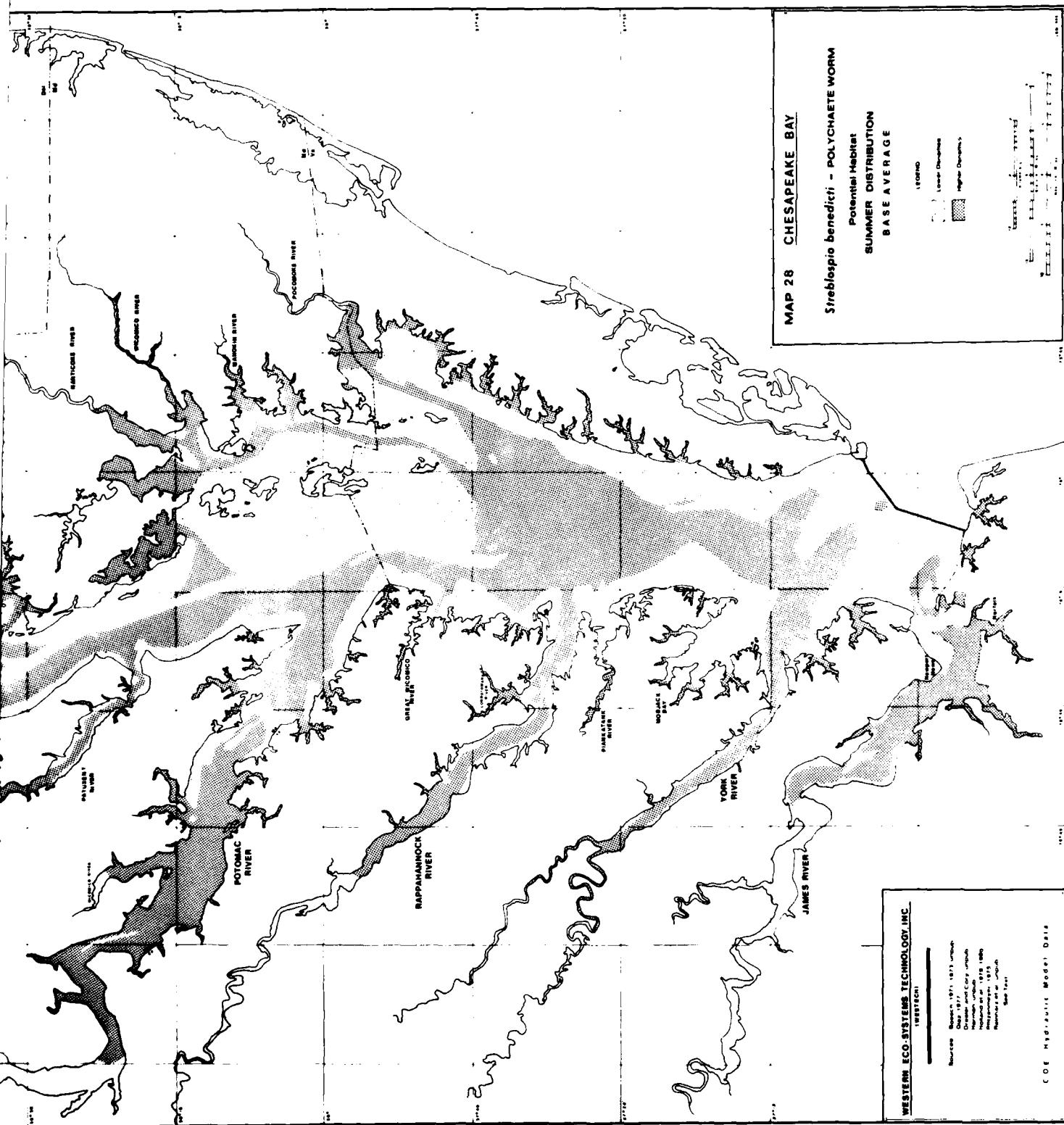


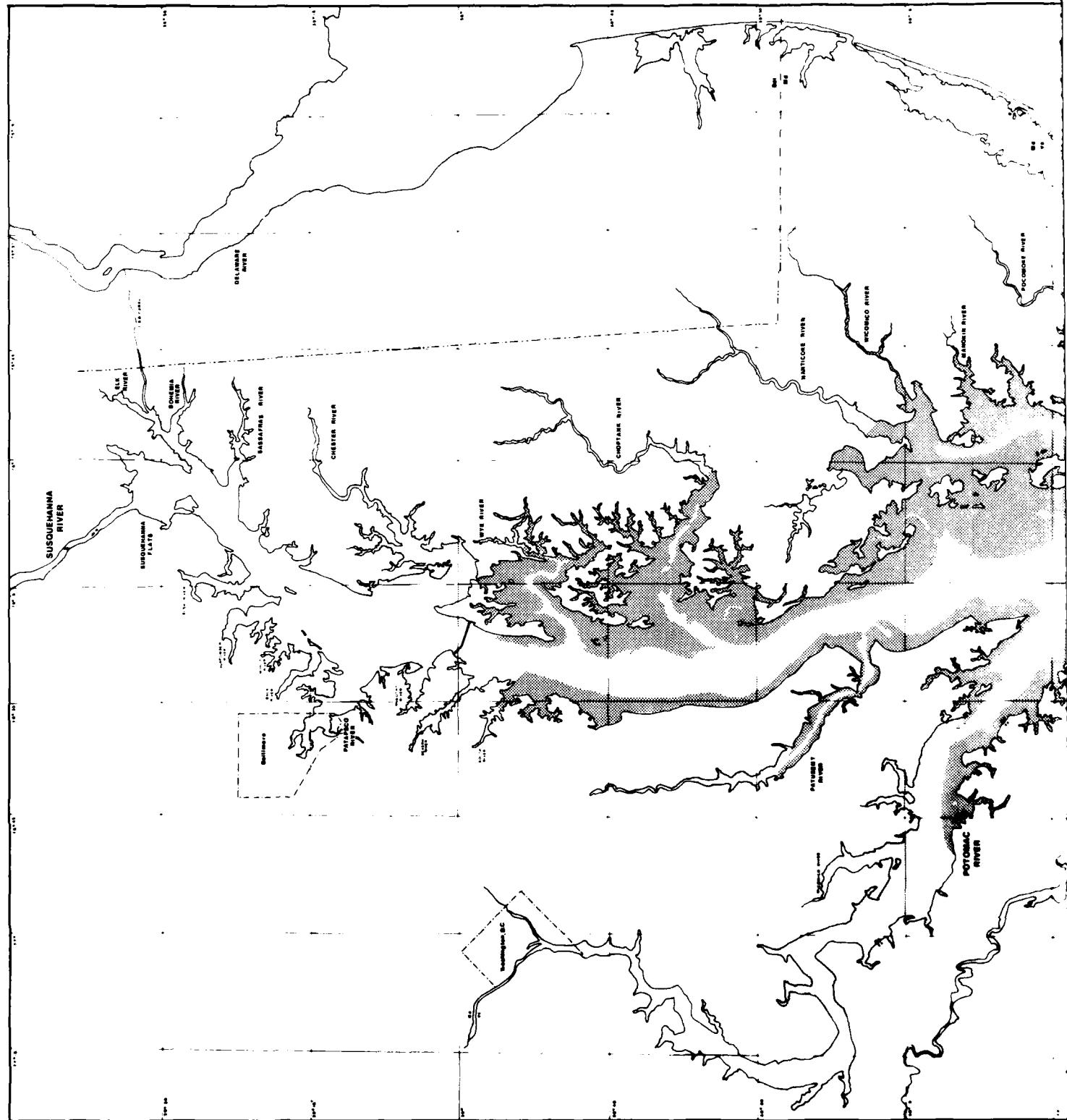


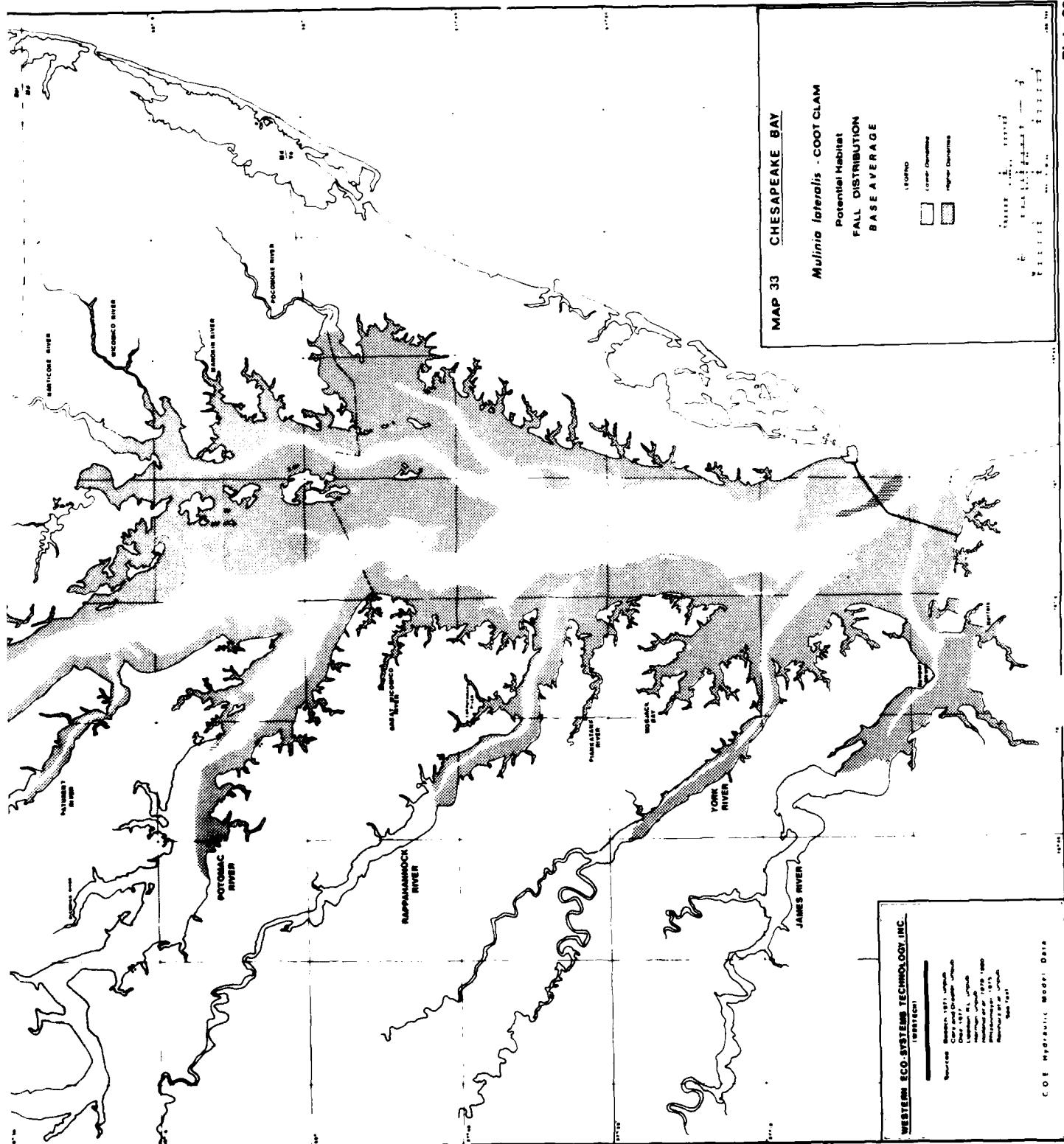


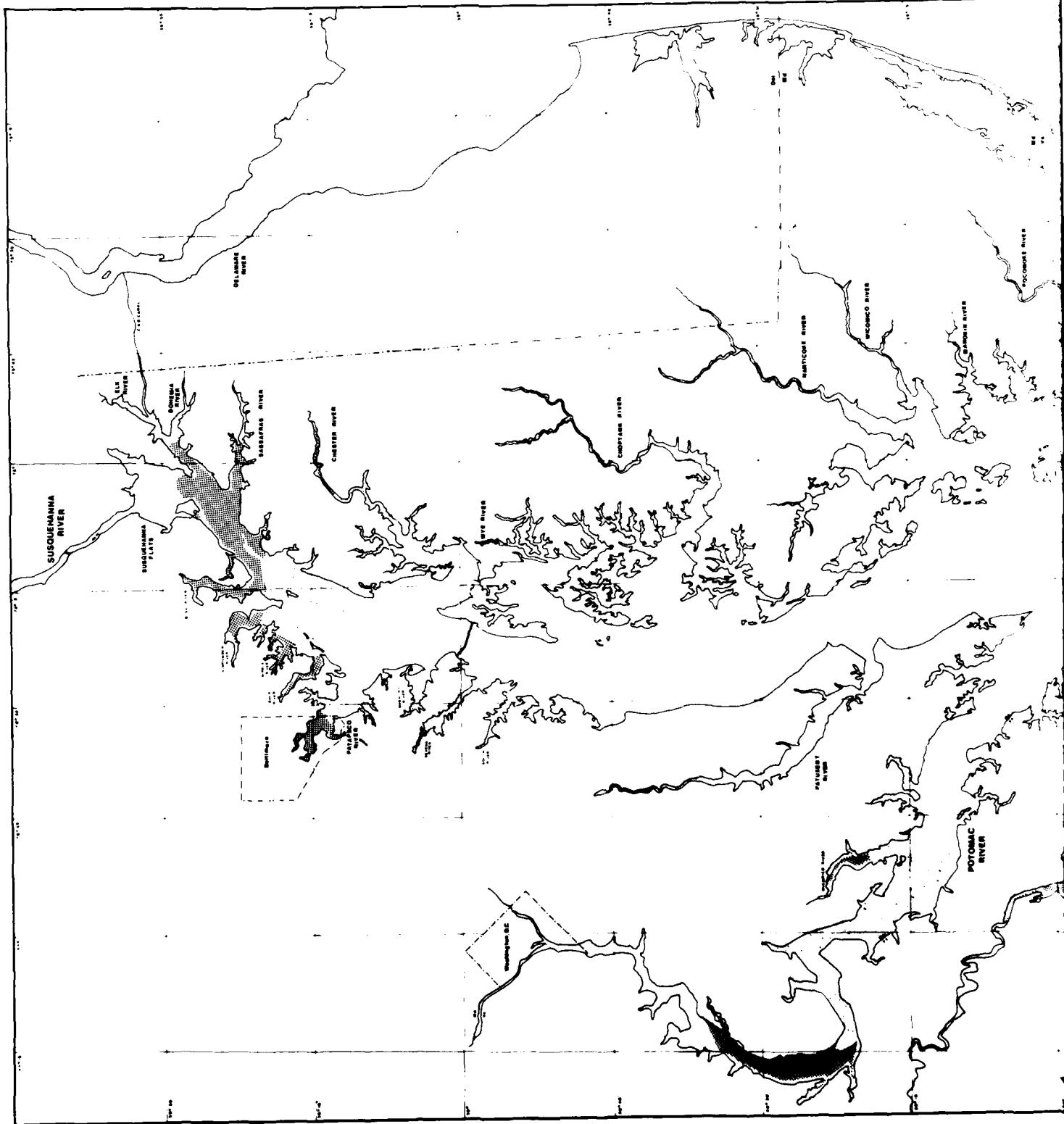












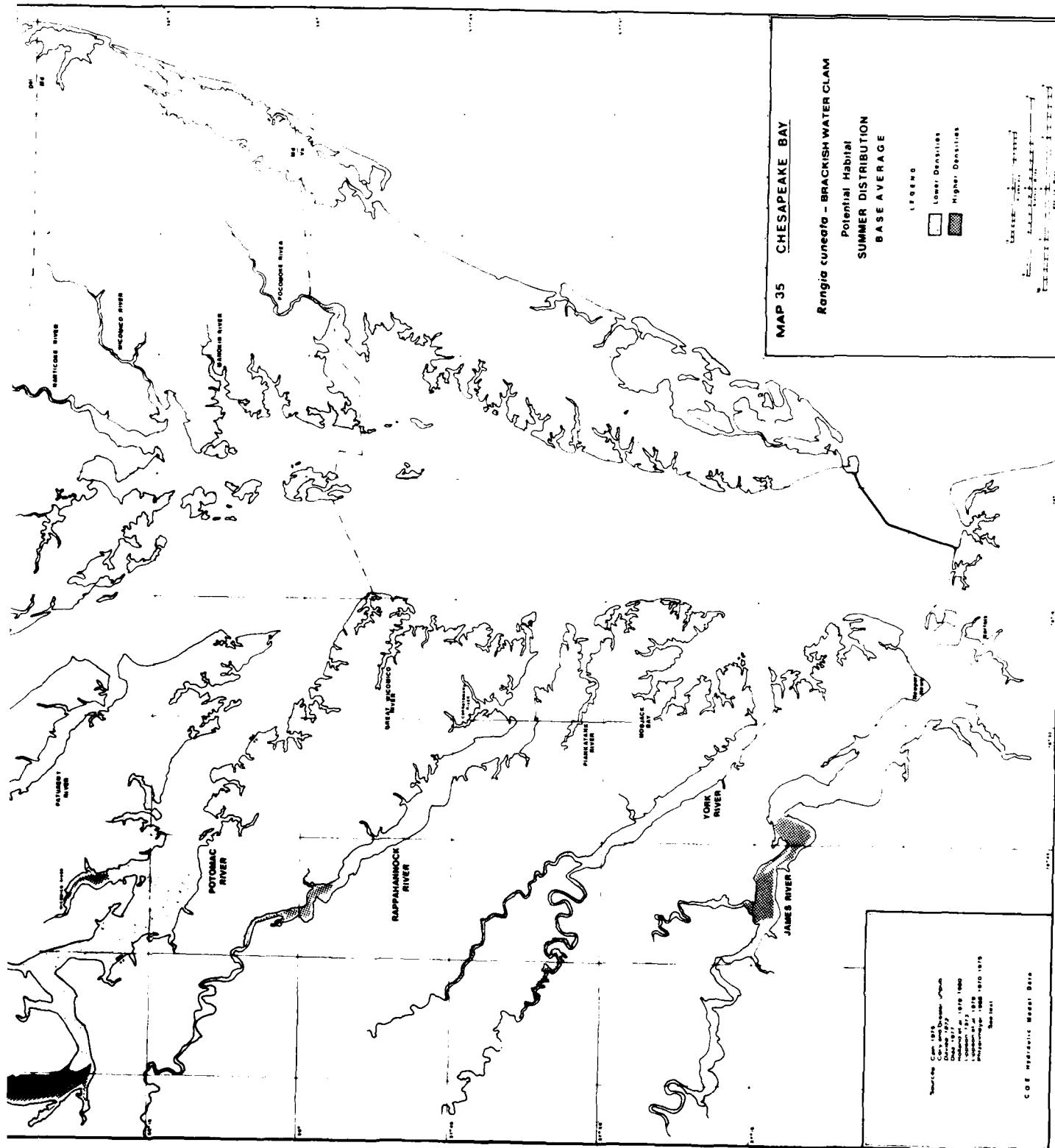
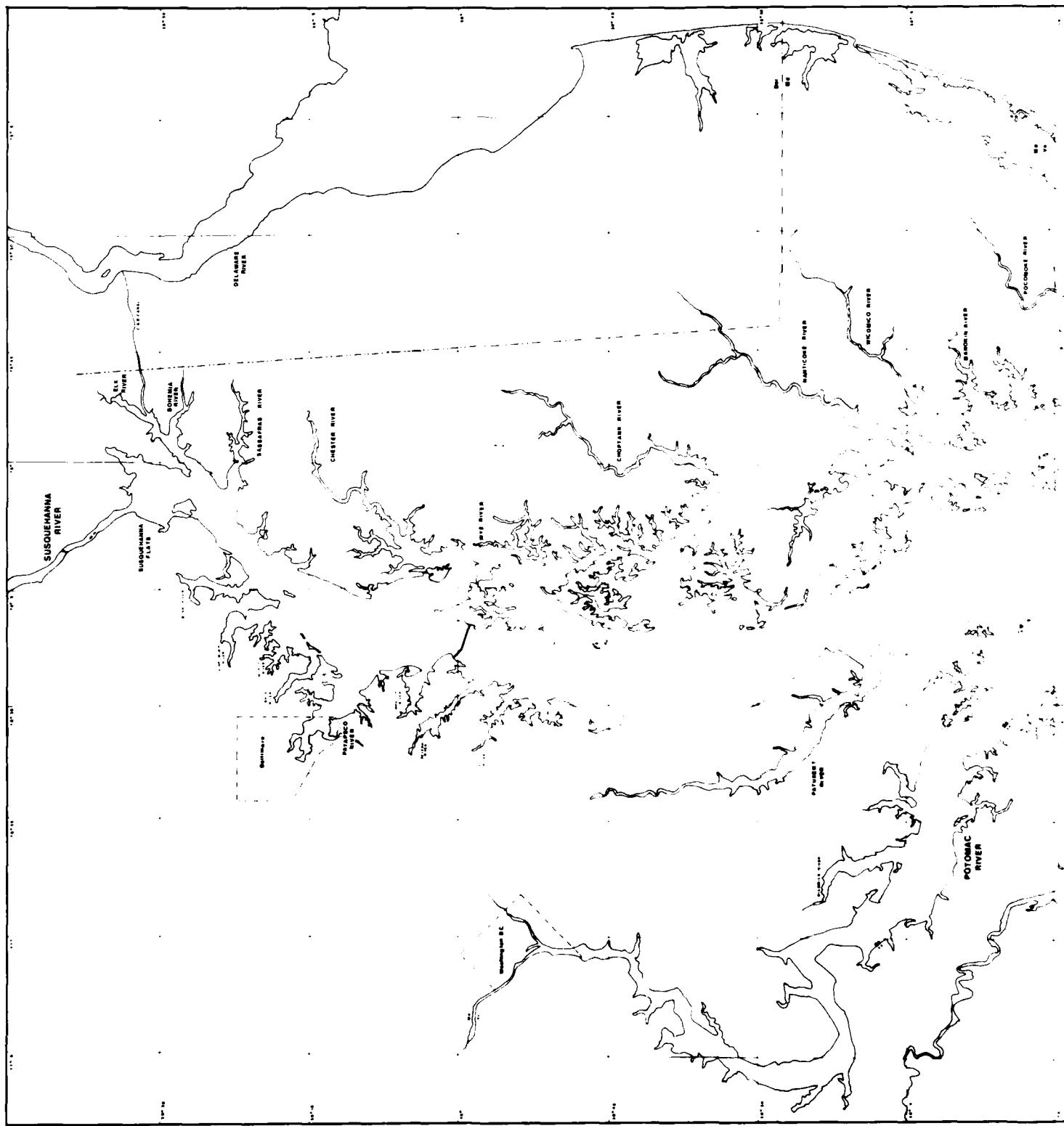
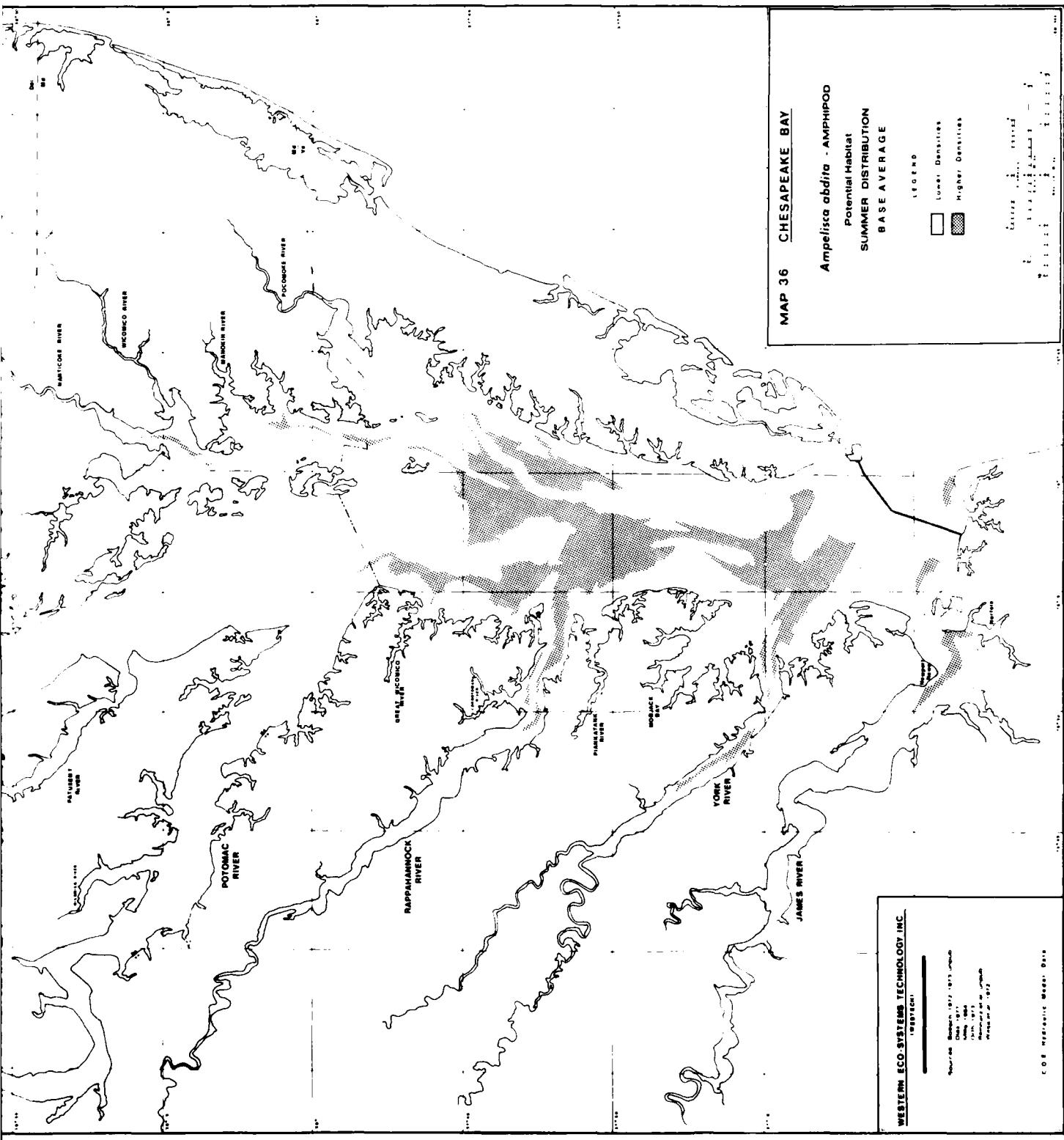
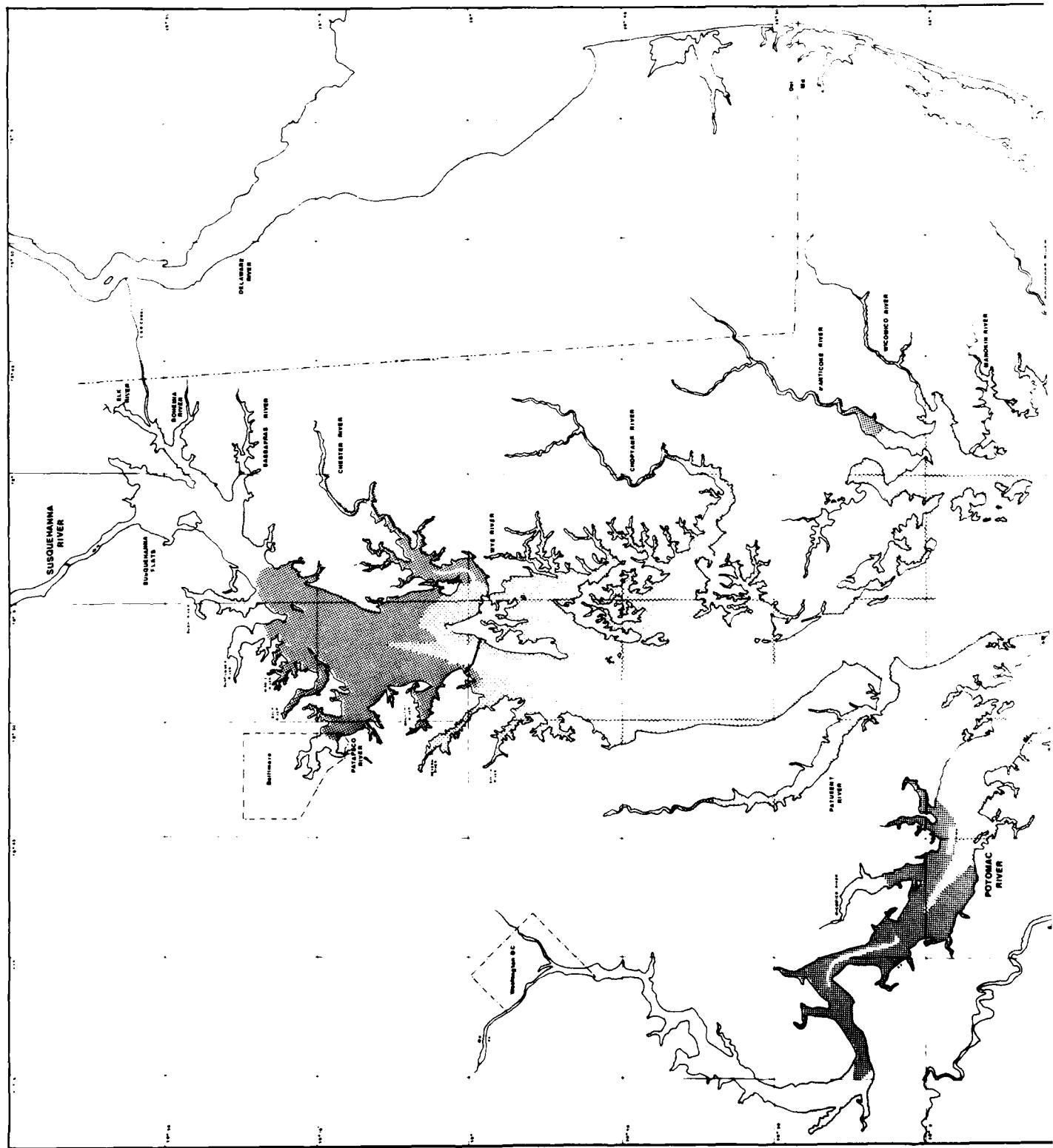


Plate 29







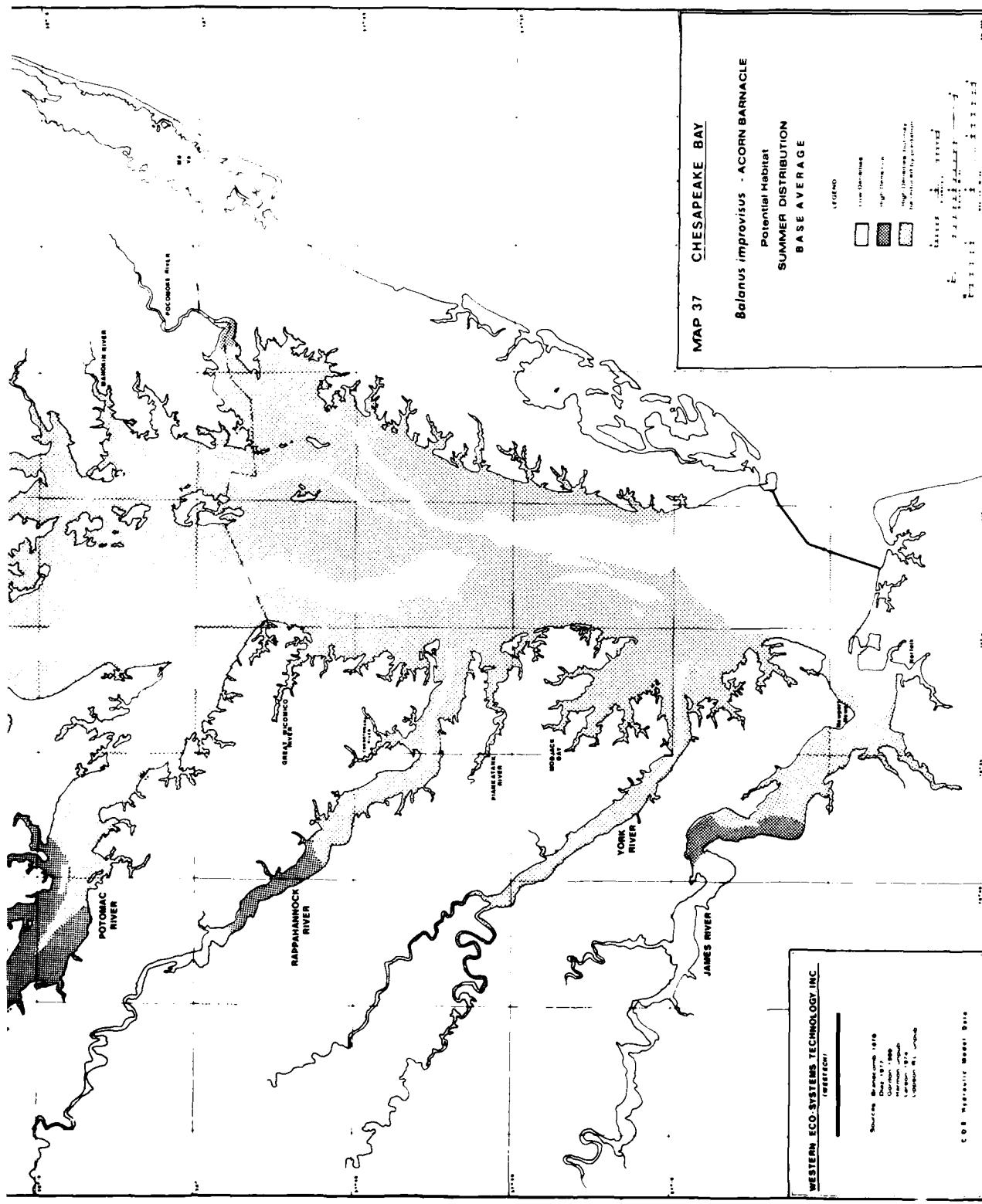
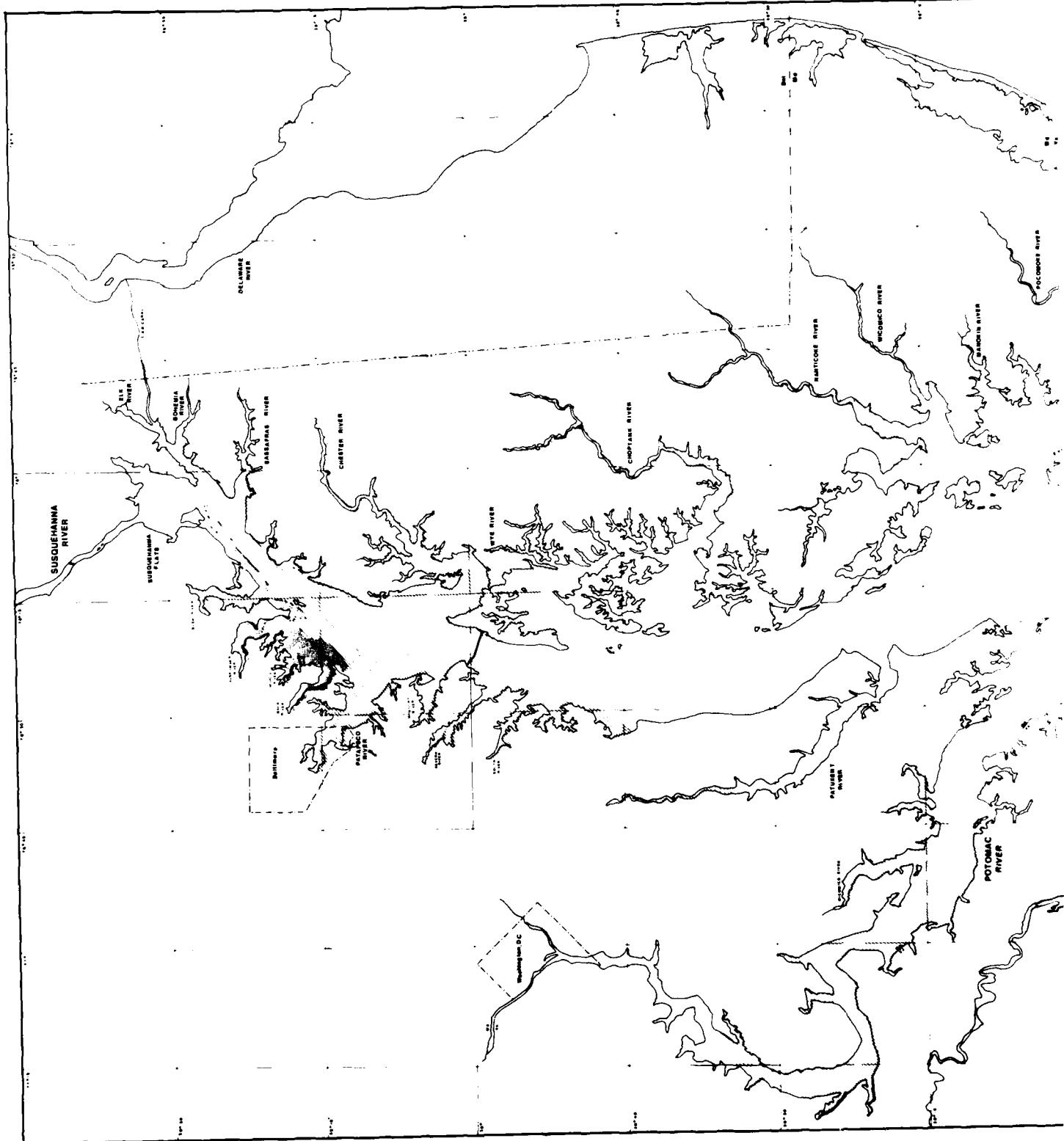
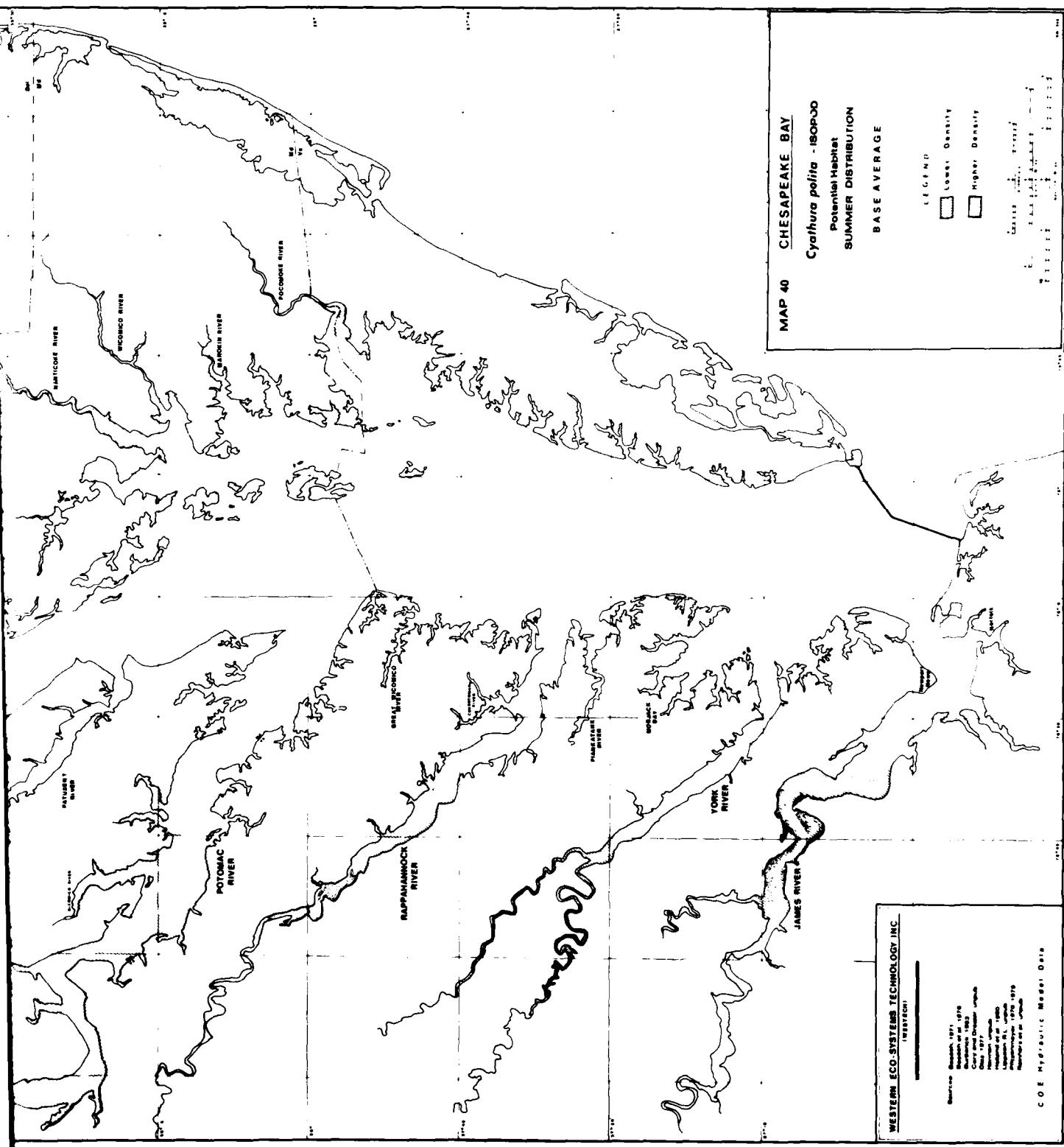
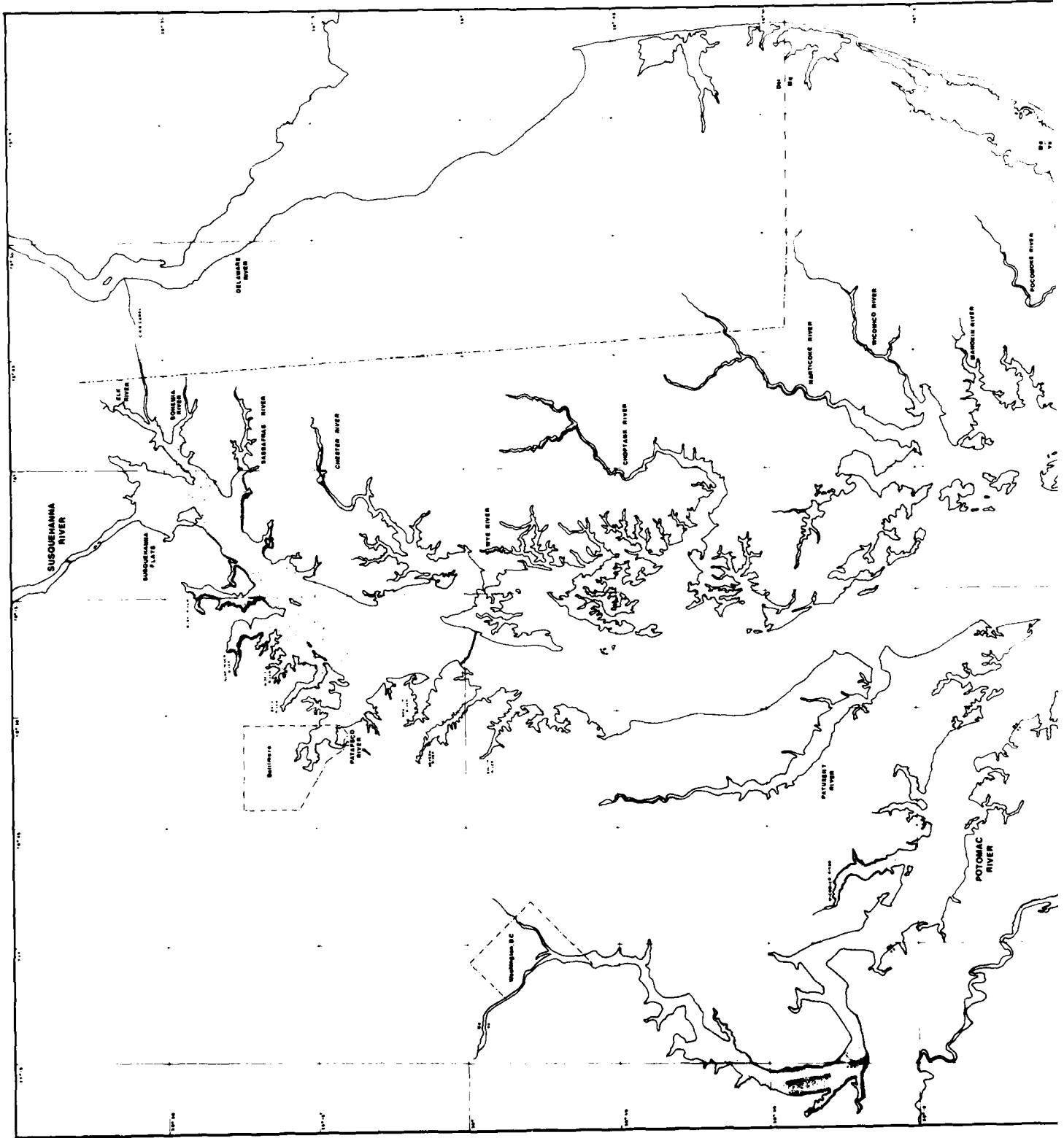
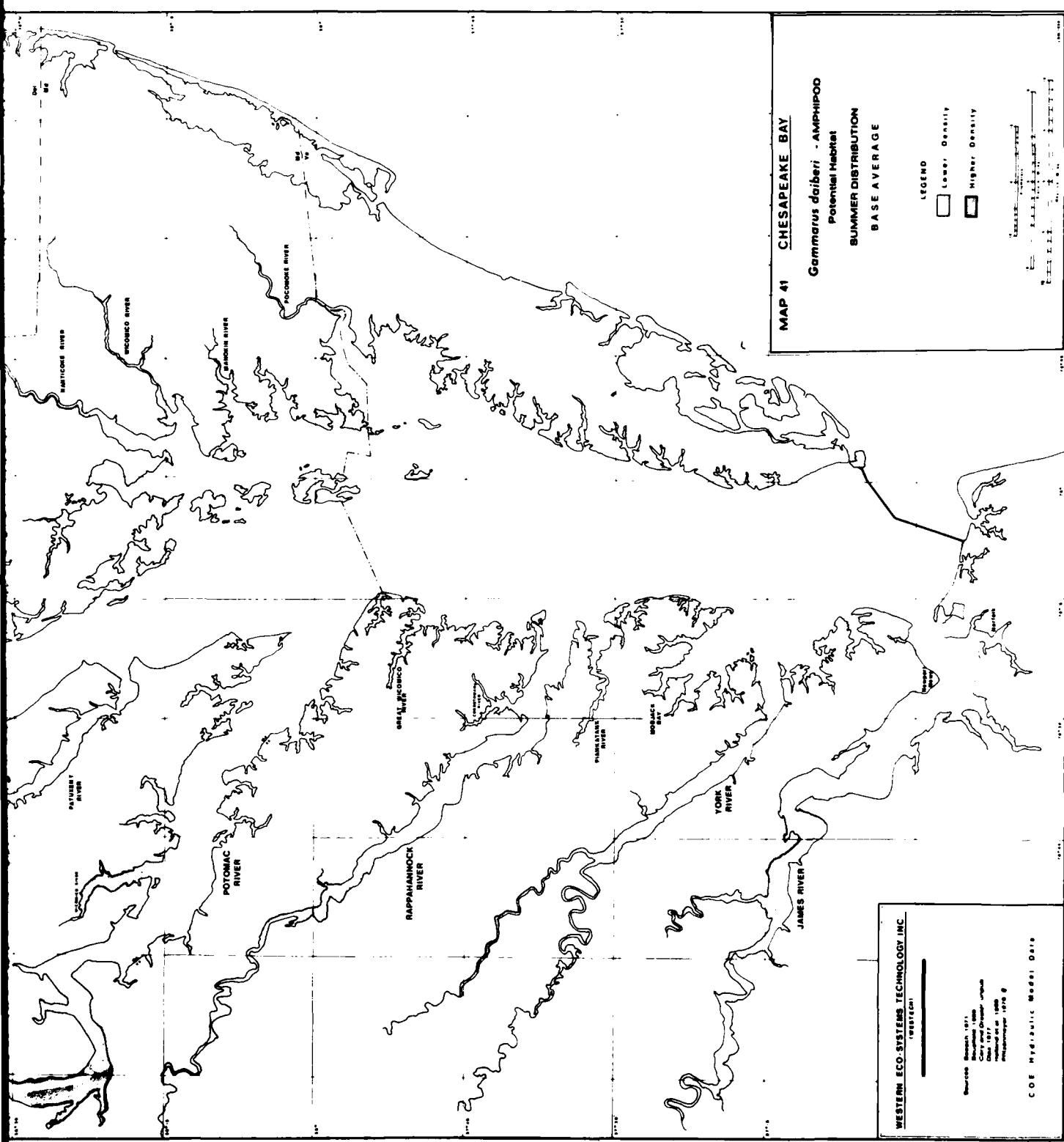


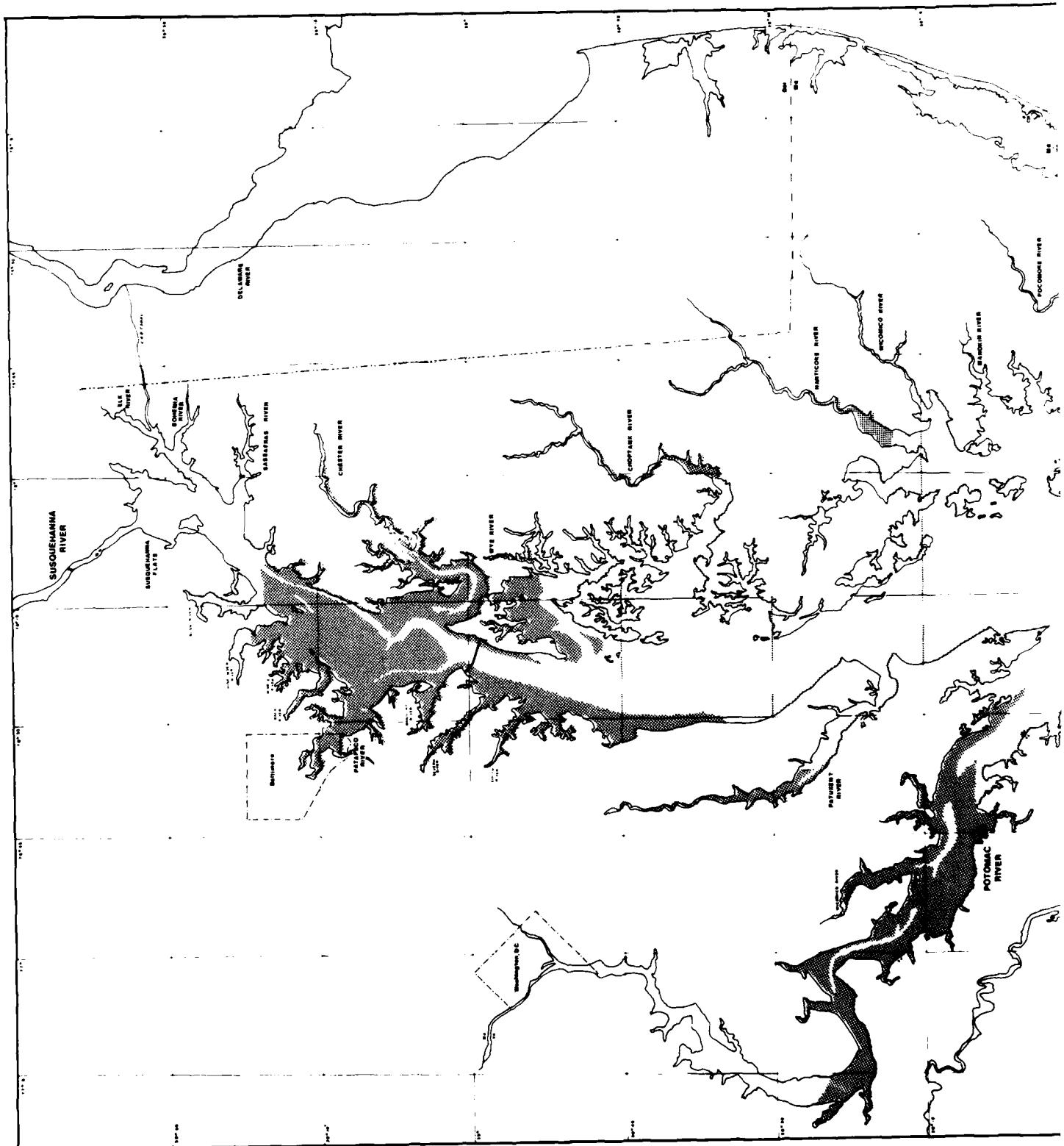
Plate 31











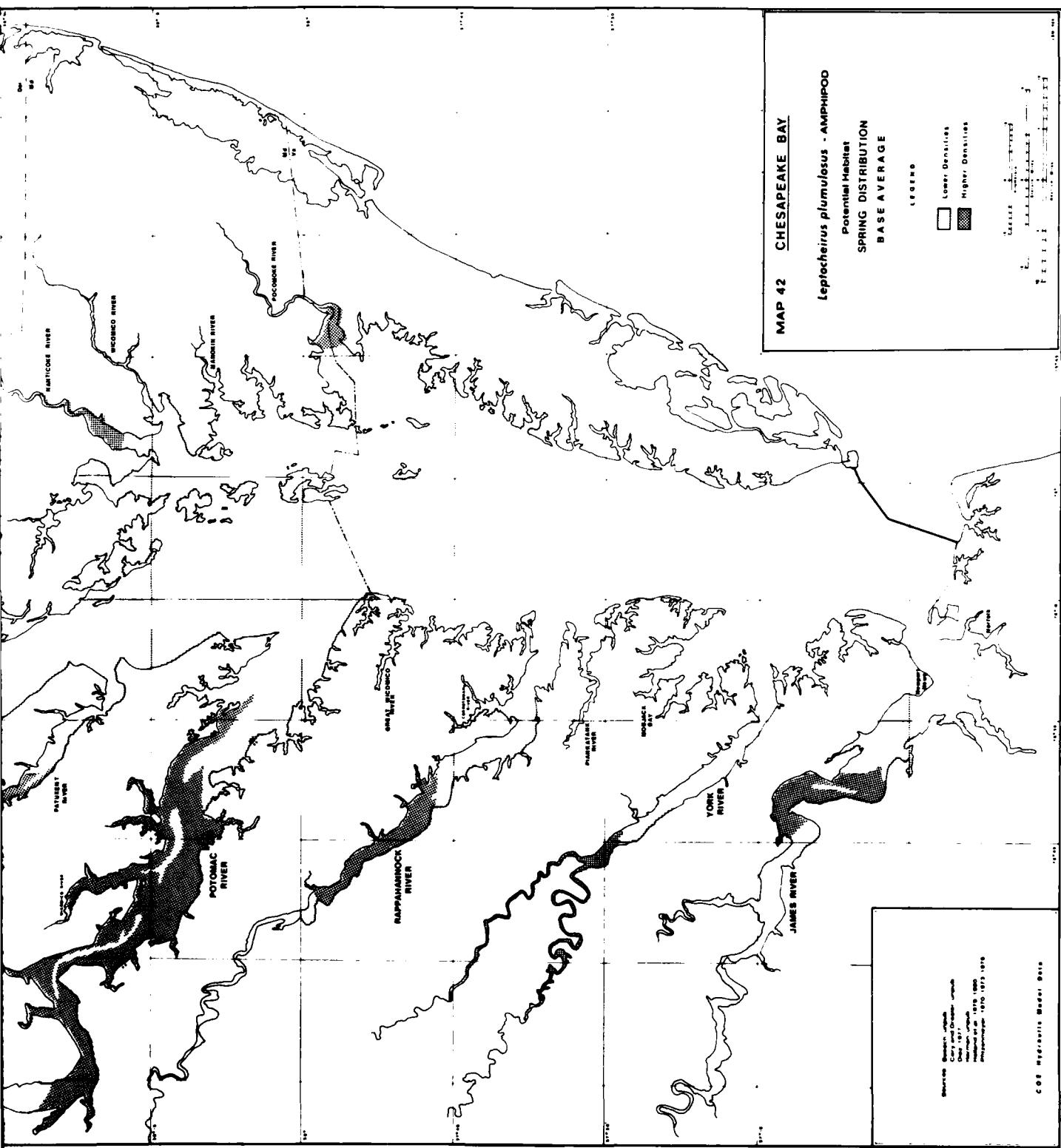
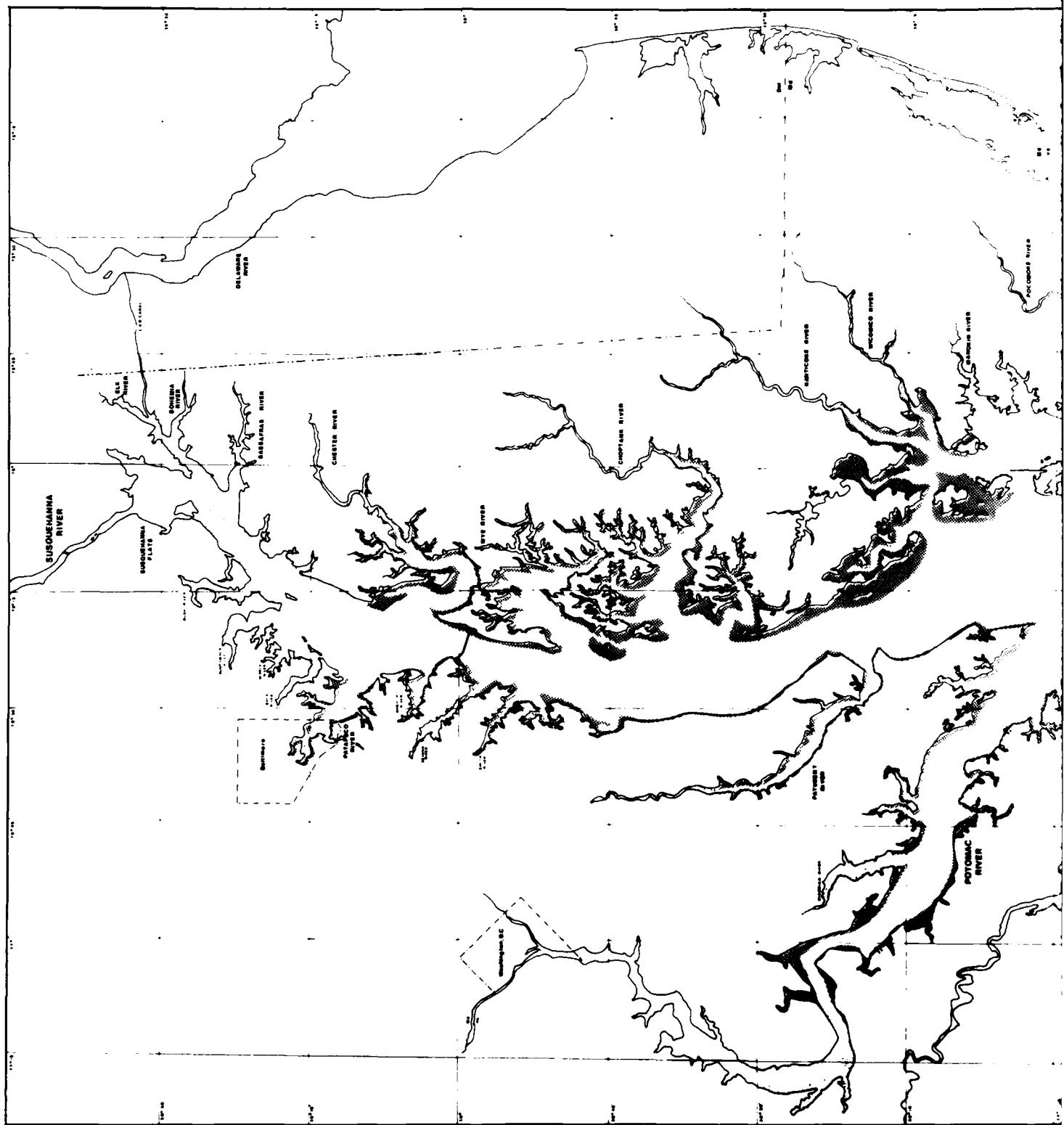
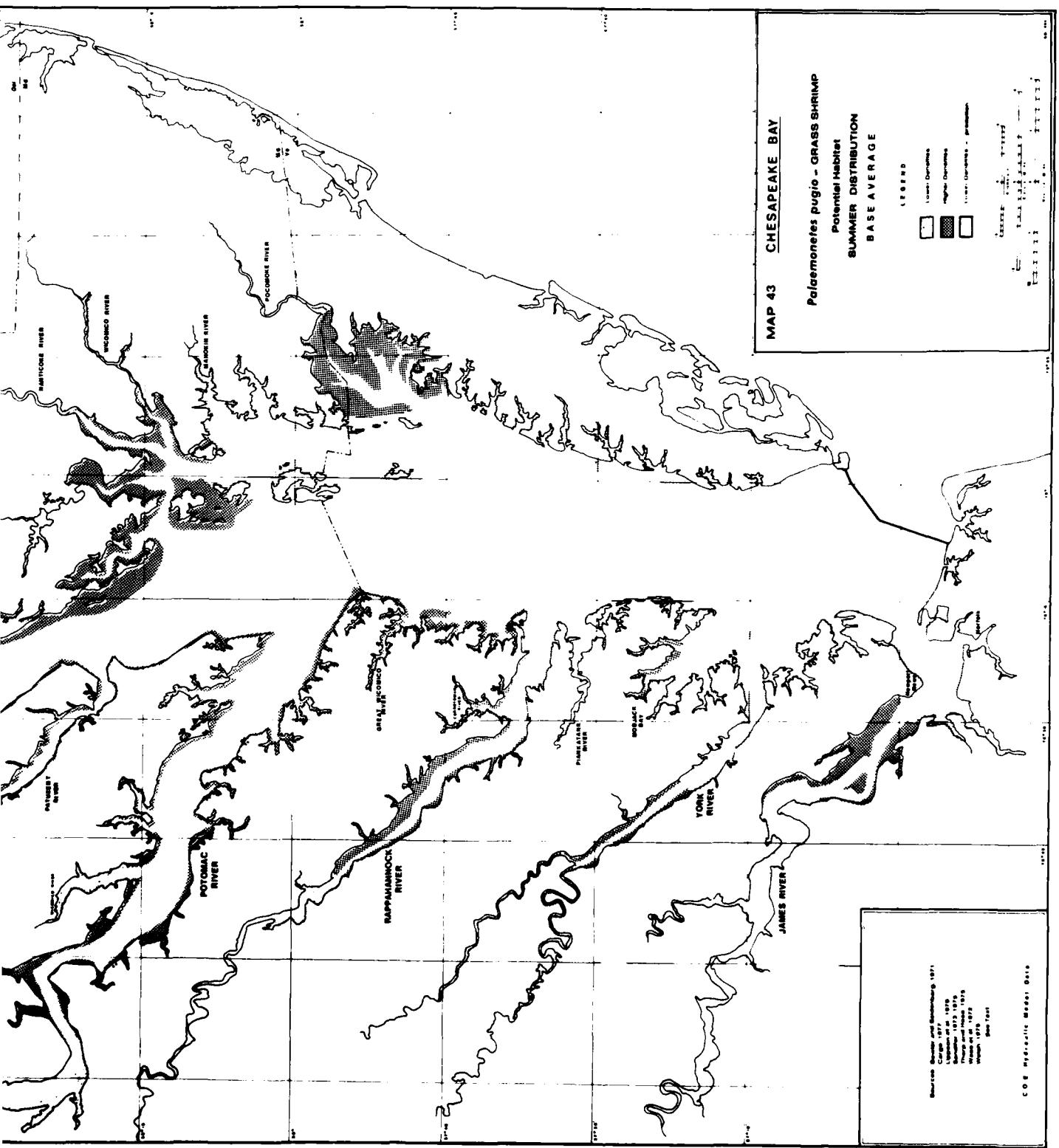


Plate 34





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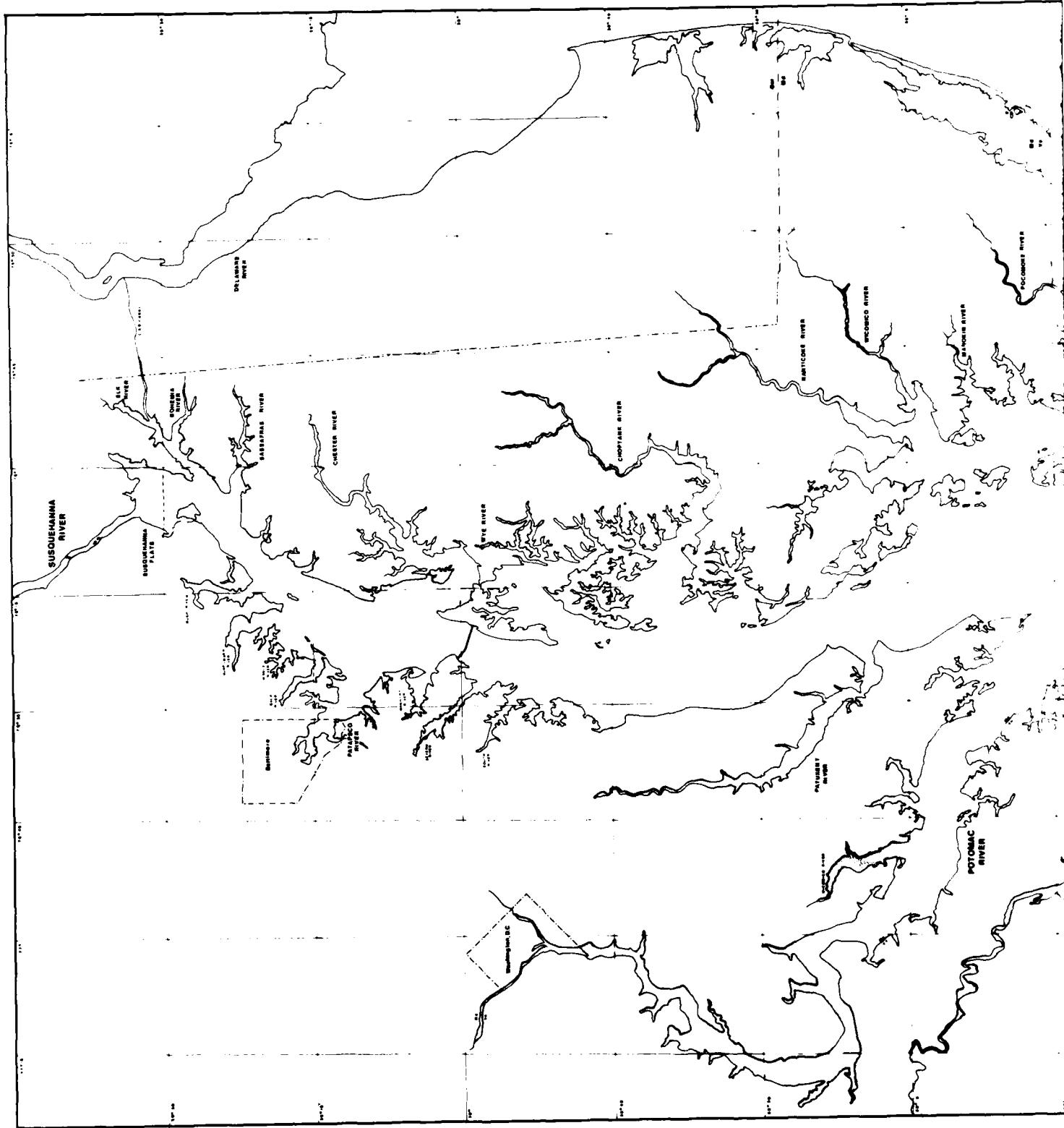
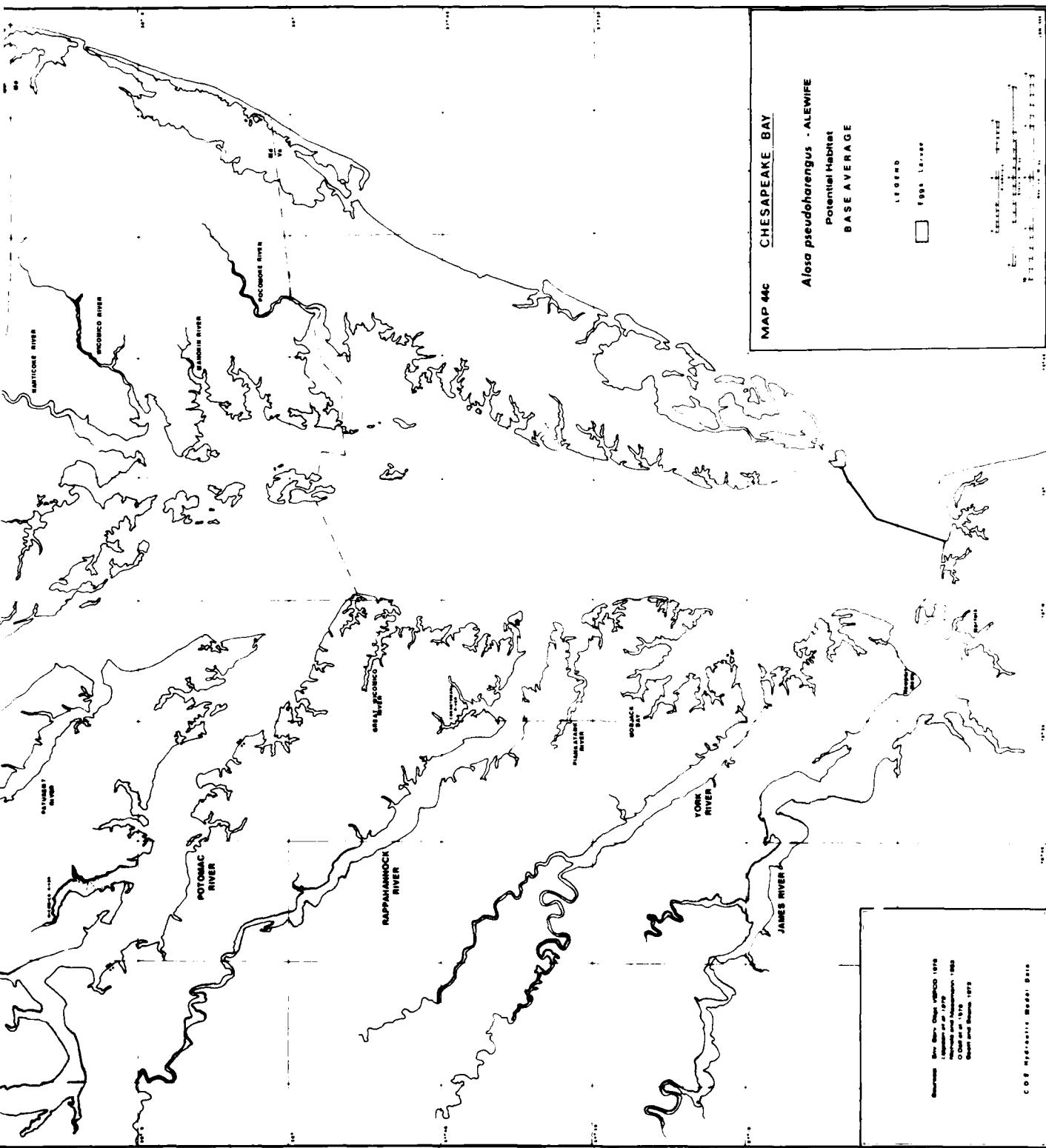
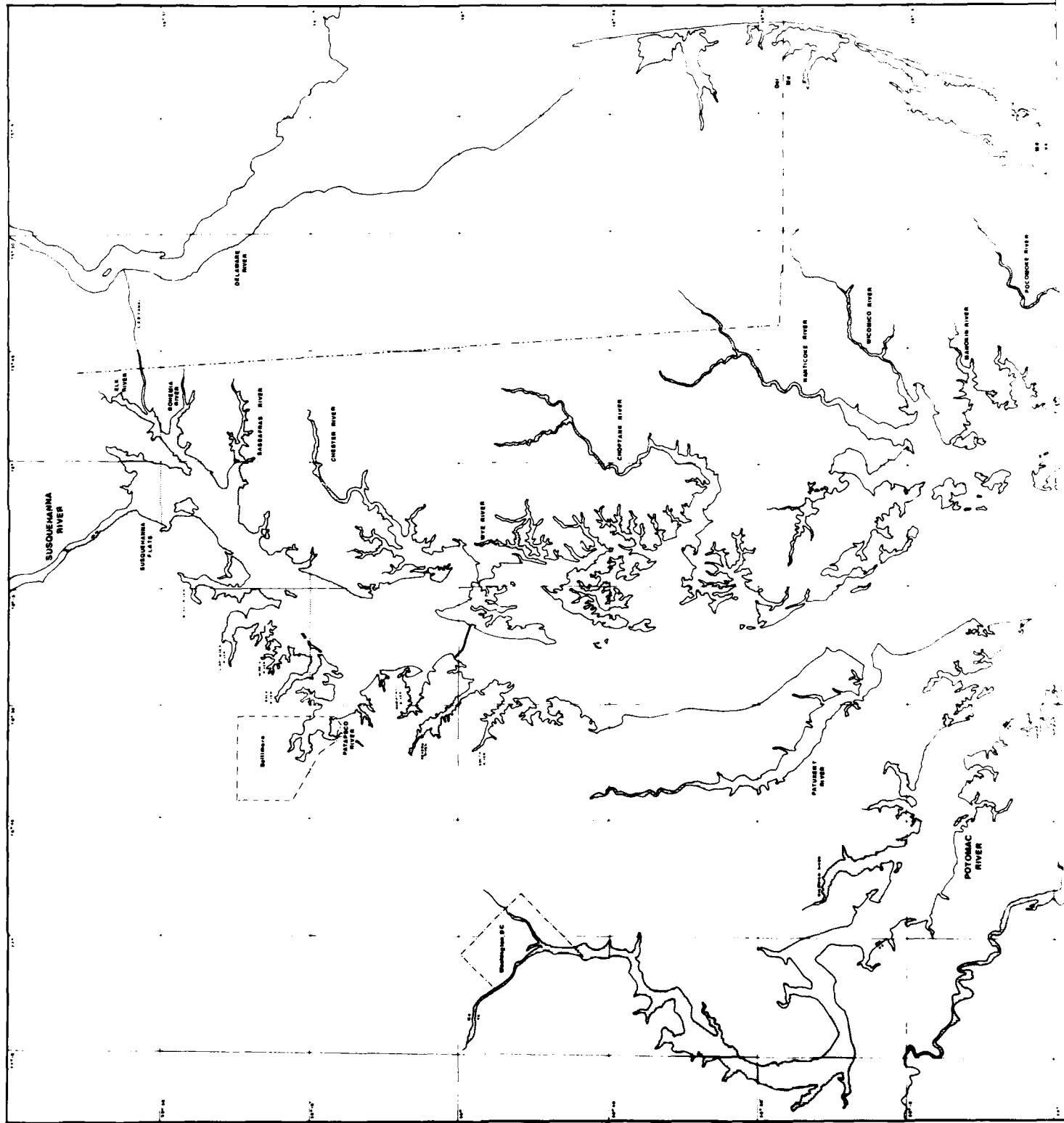
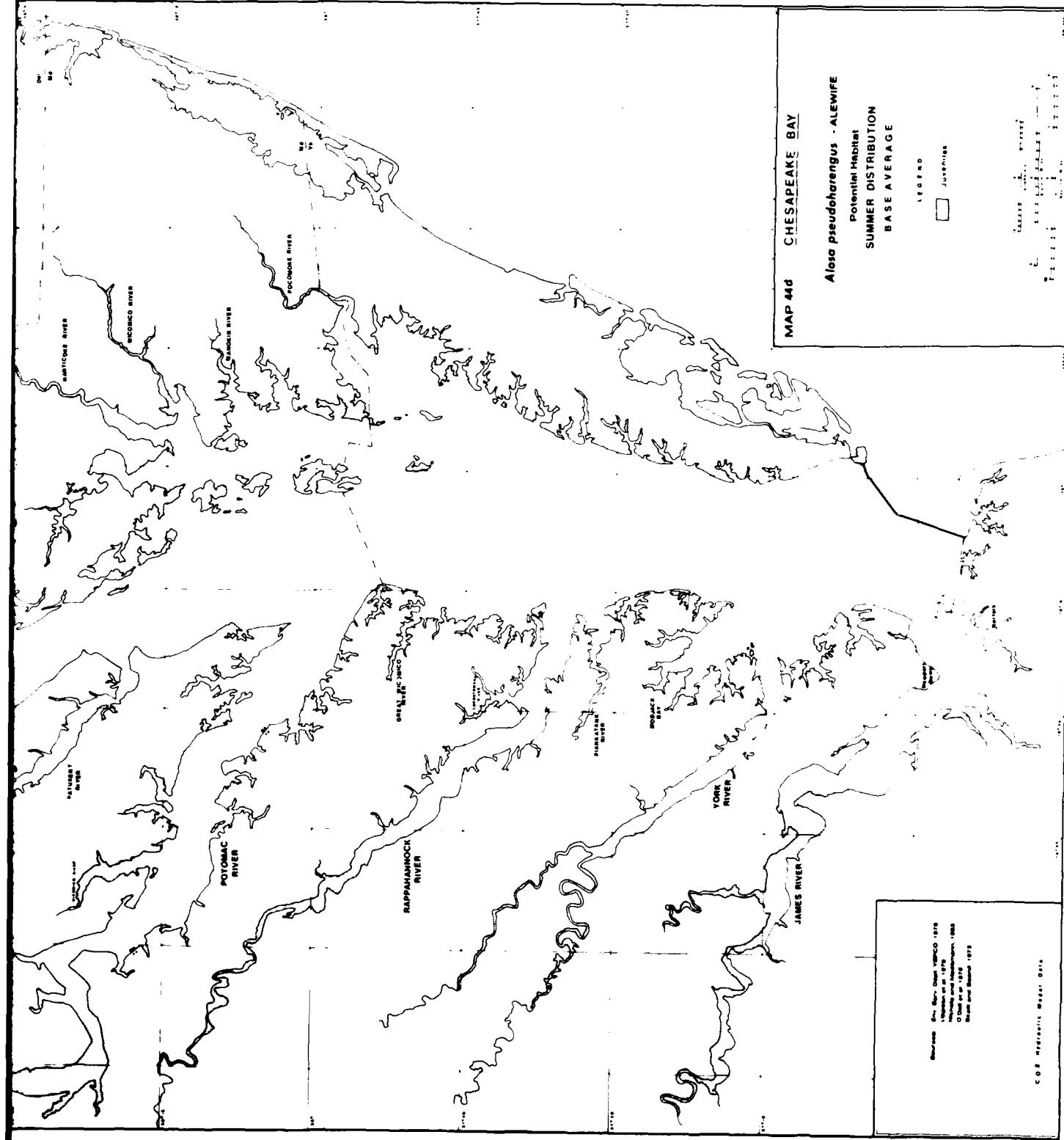
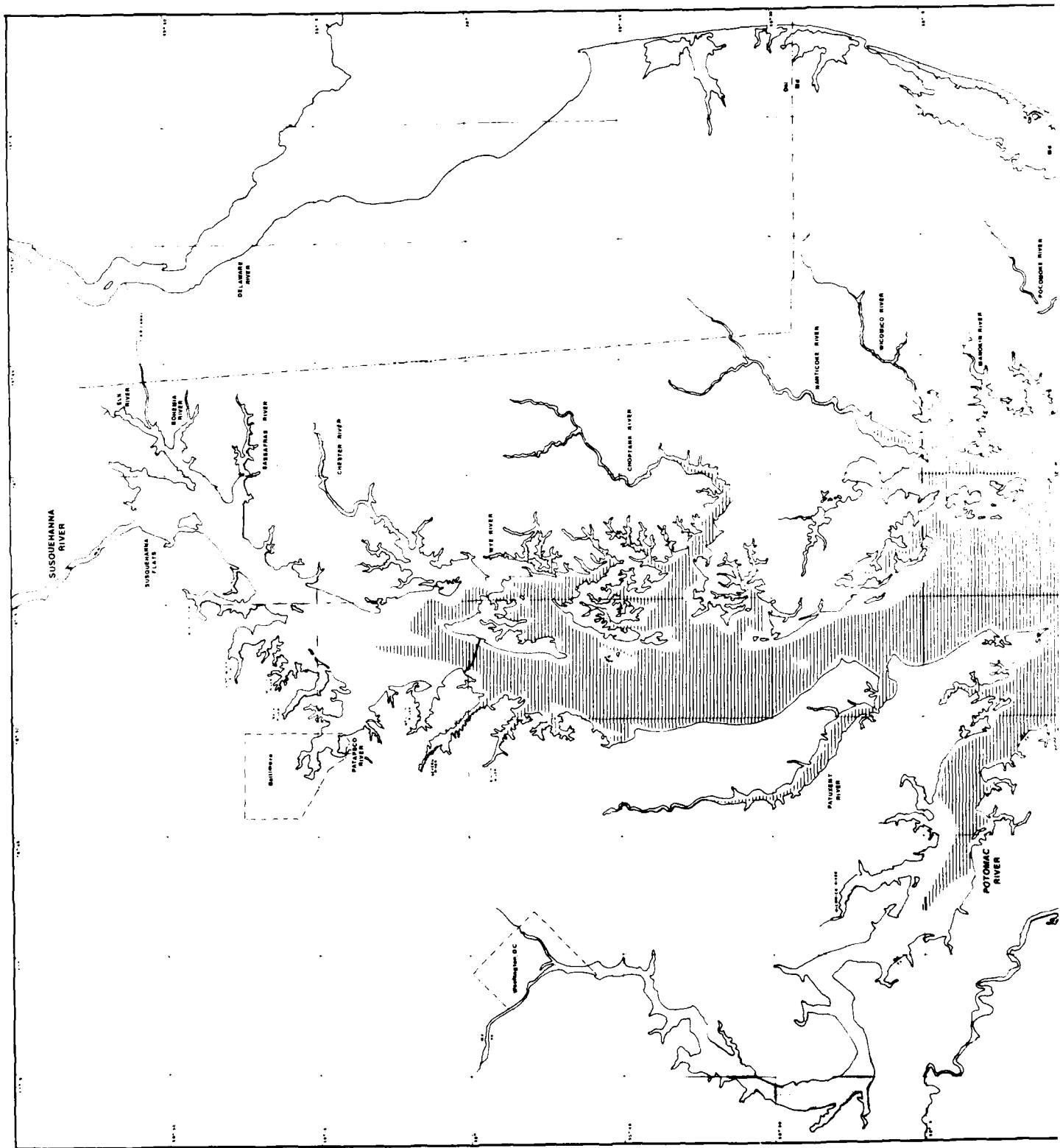


Plate 36









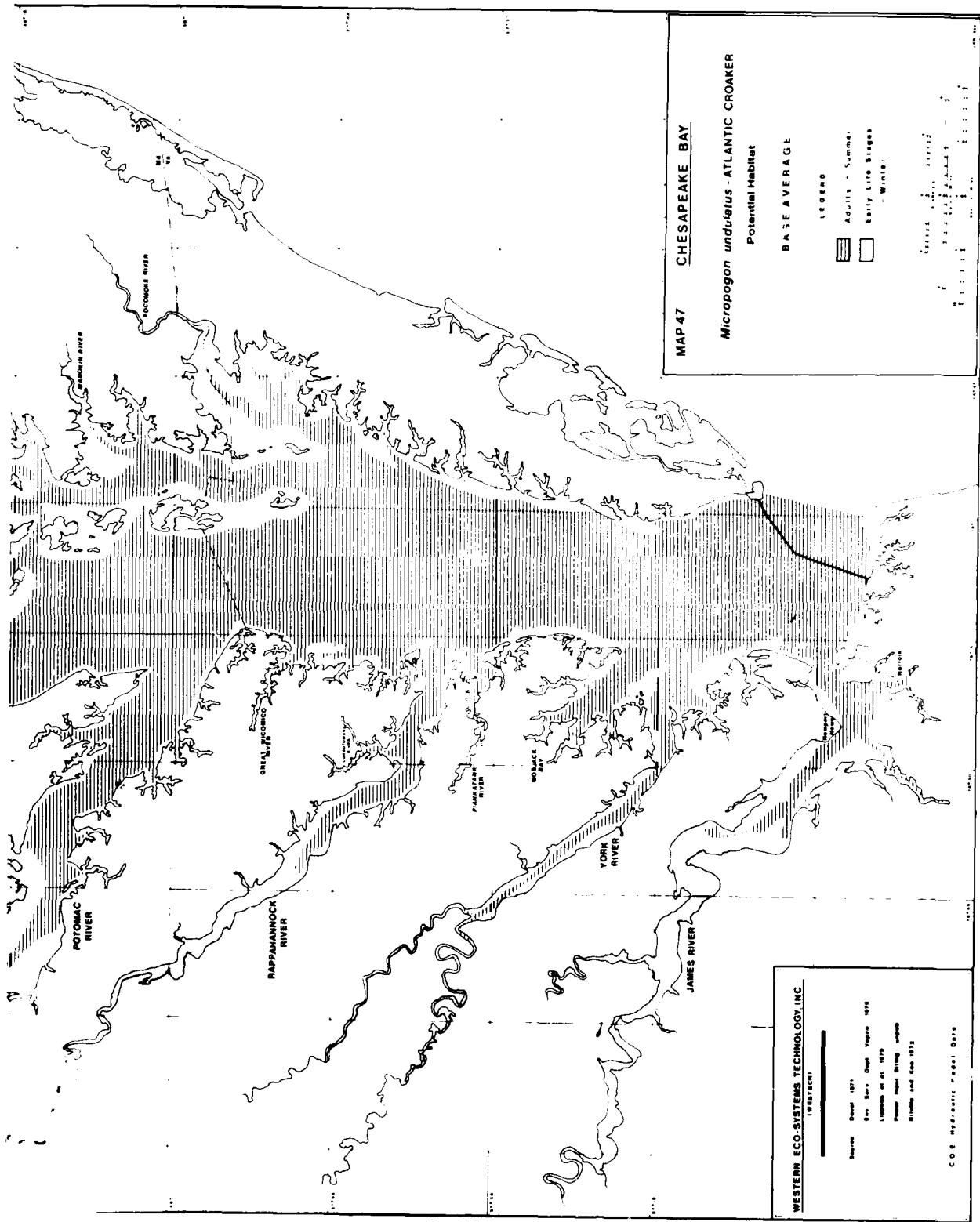


Plate 38

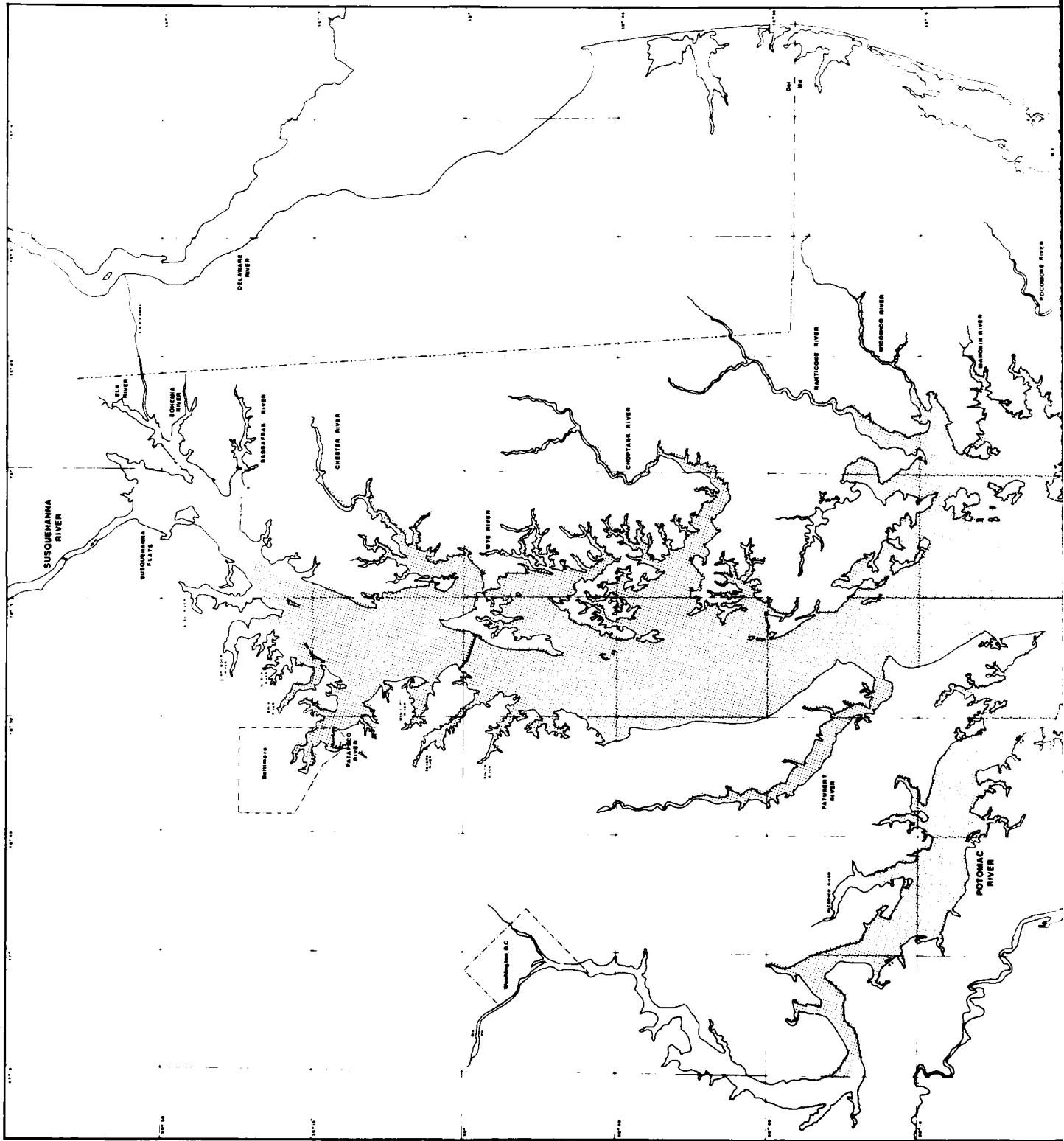
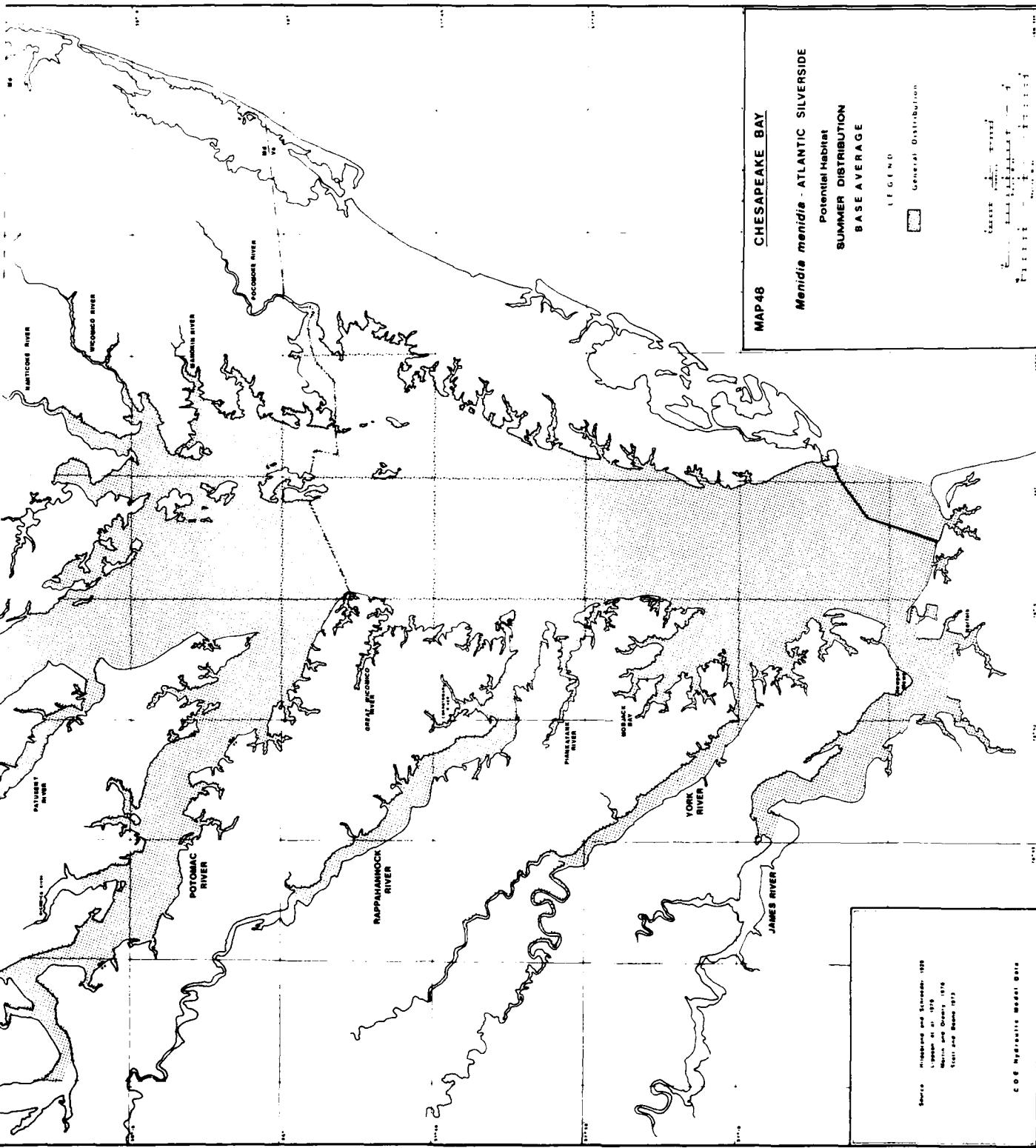
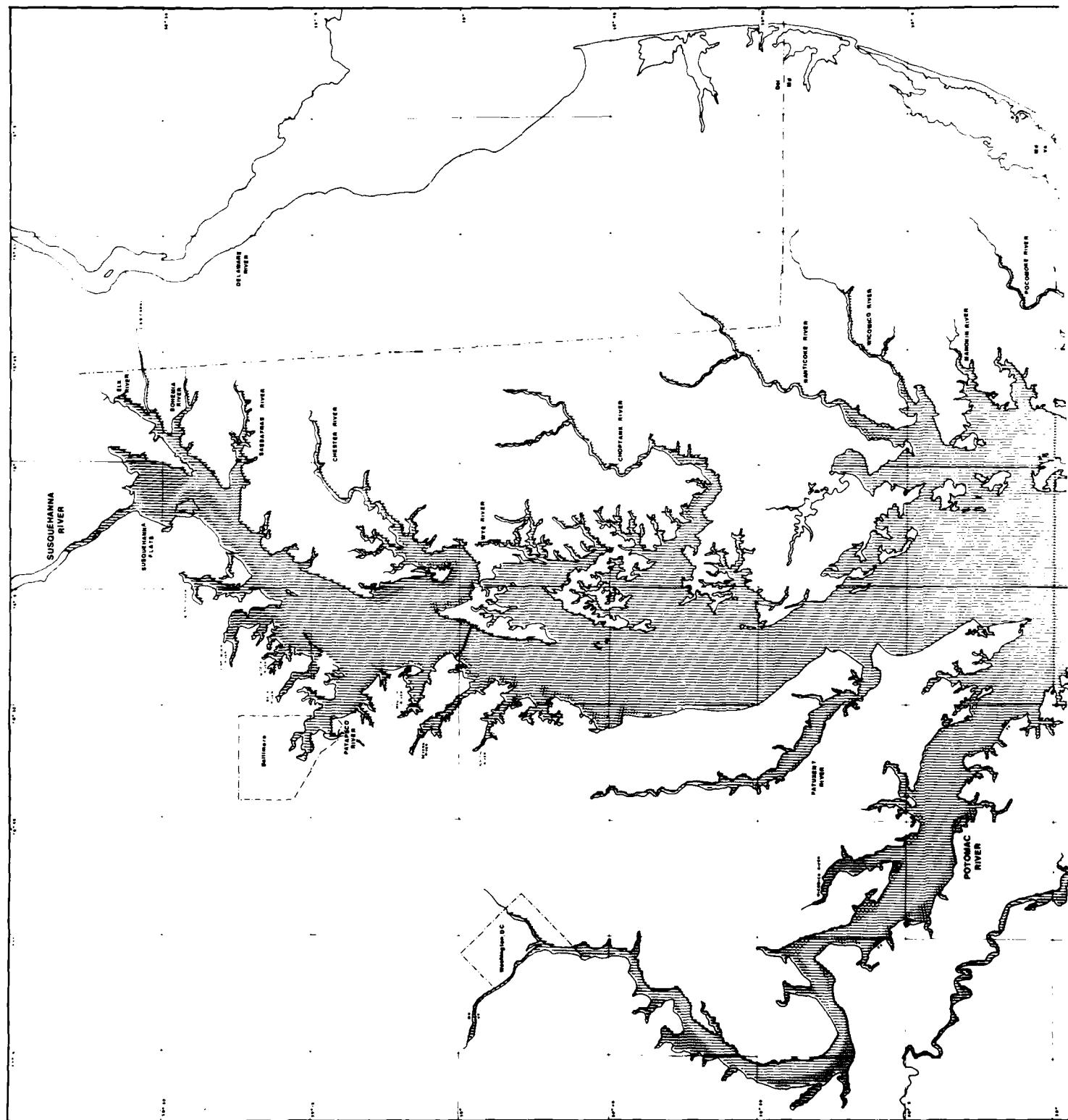
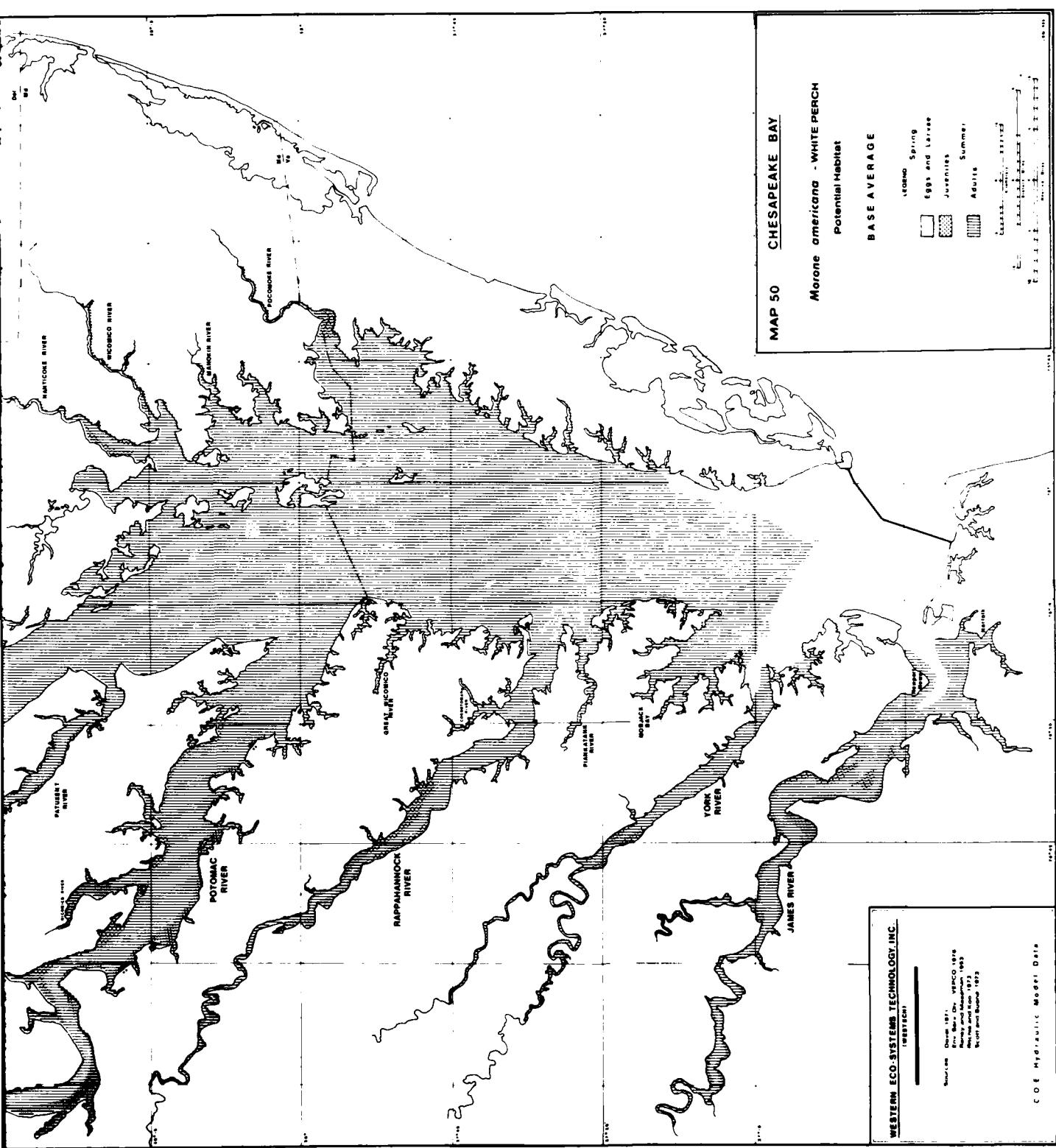


Plate 39







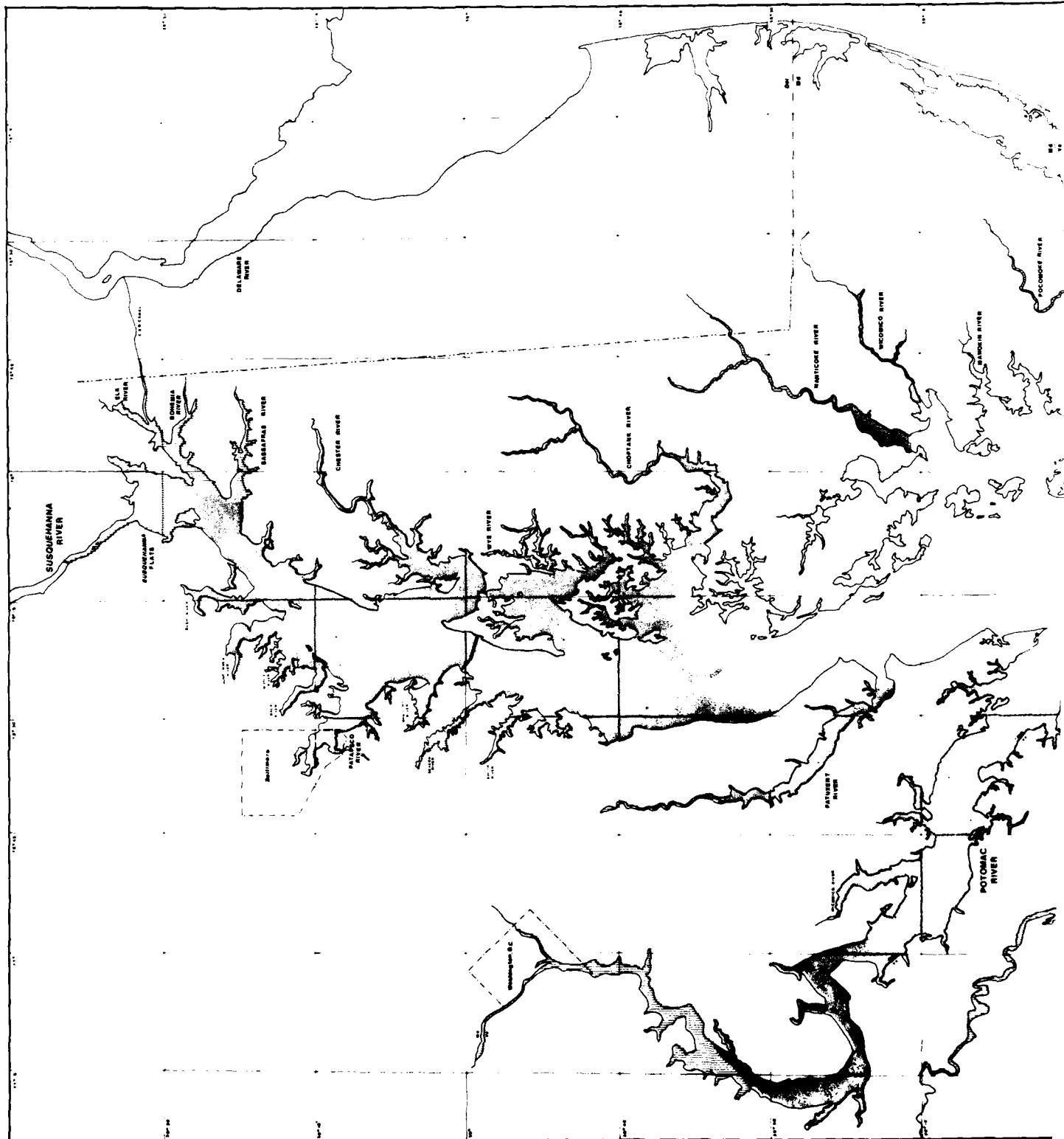
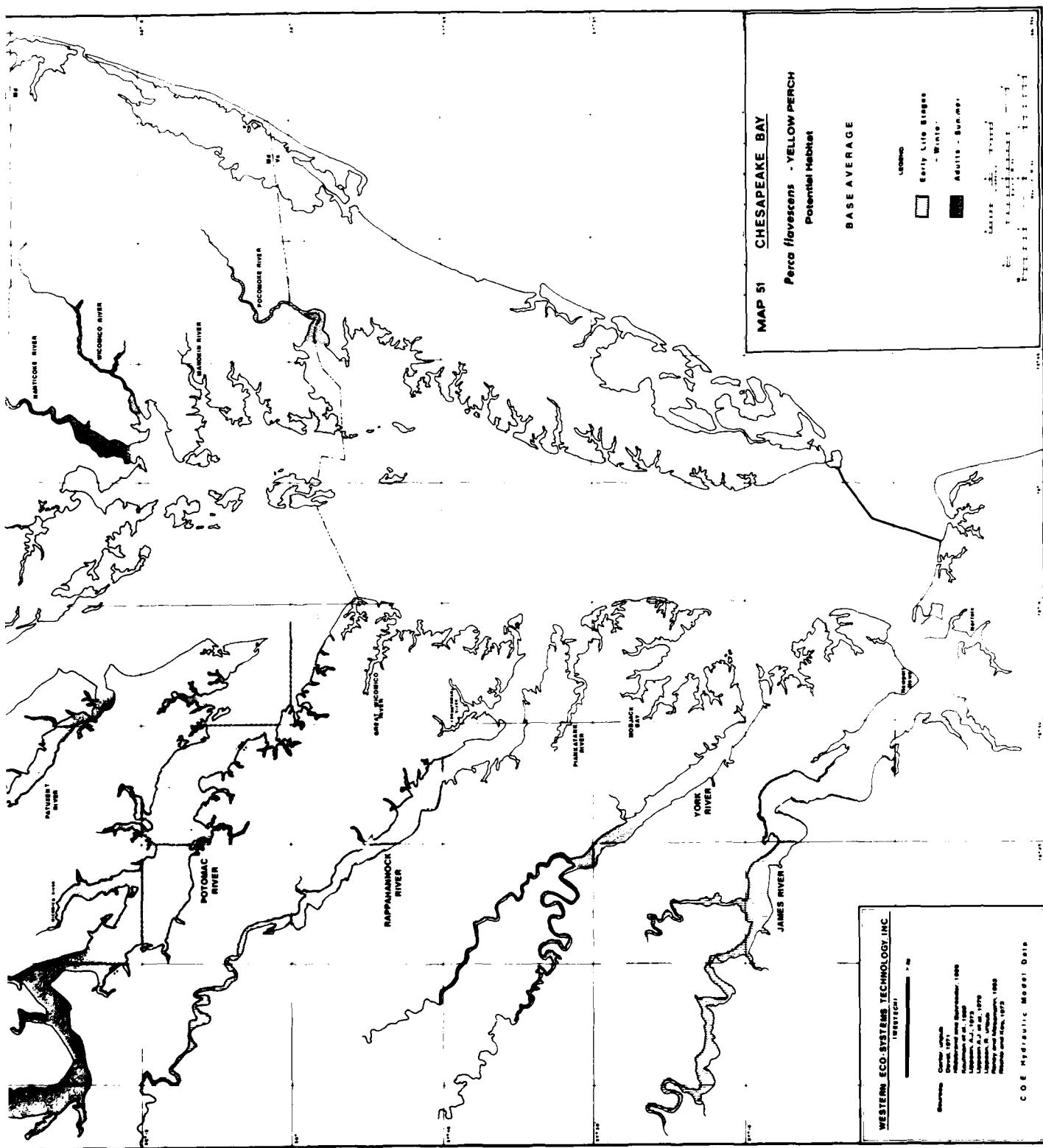
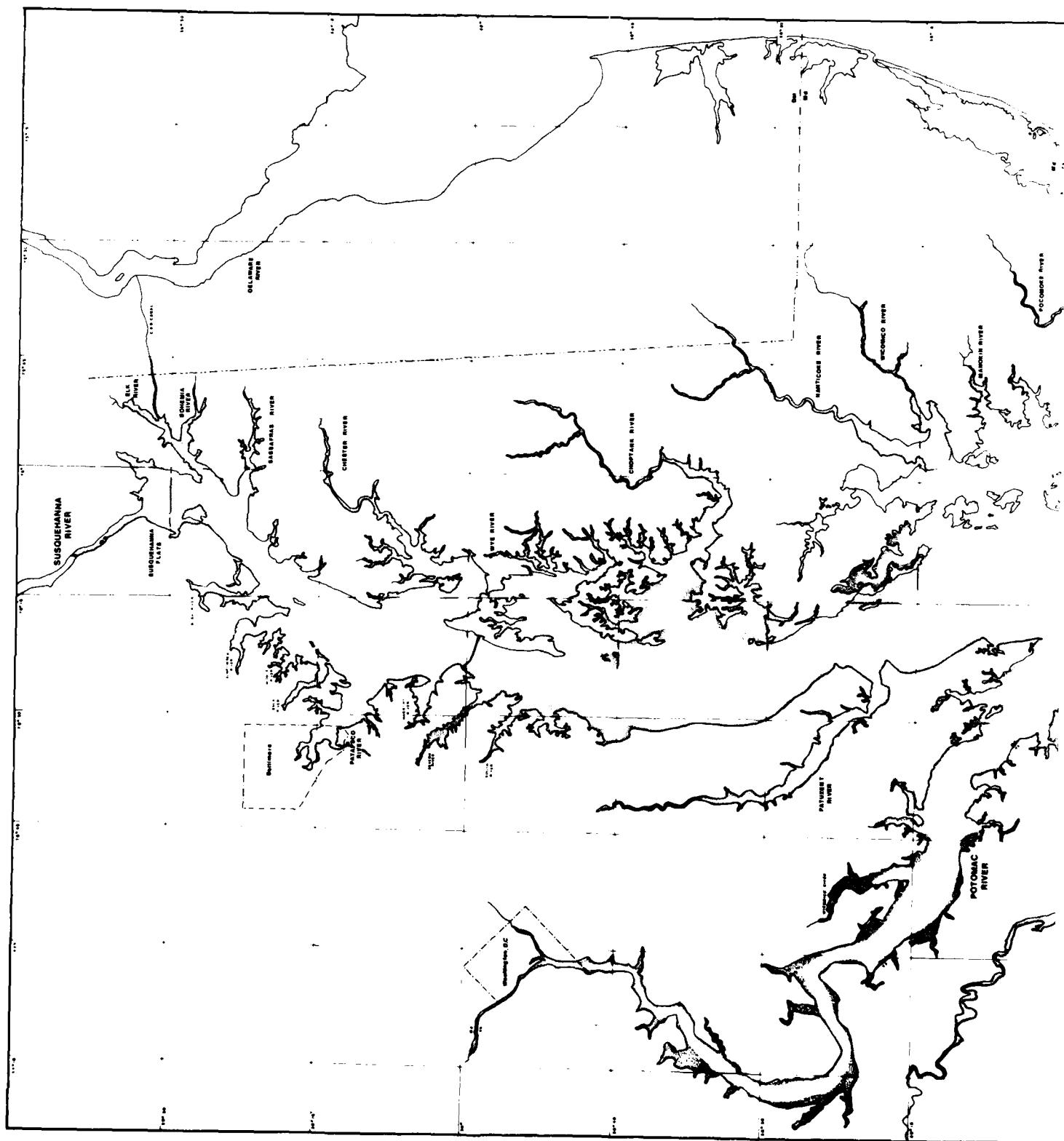
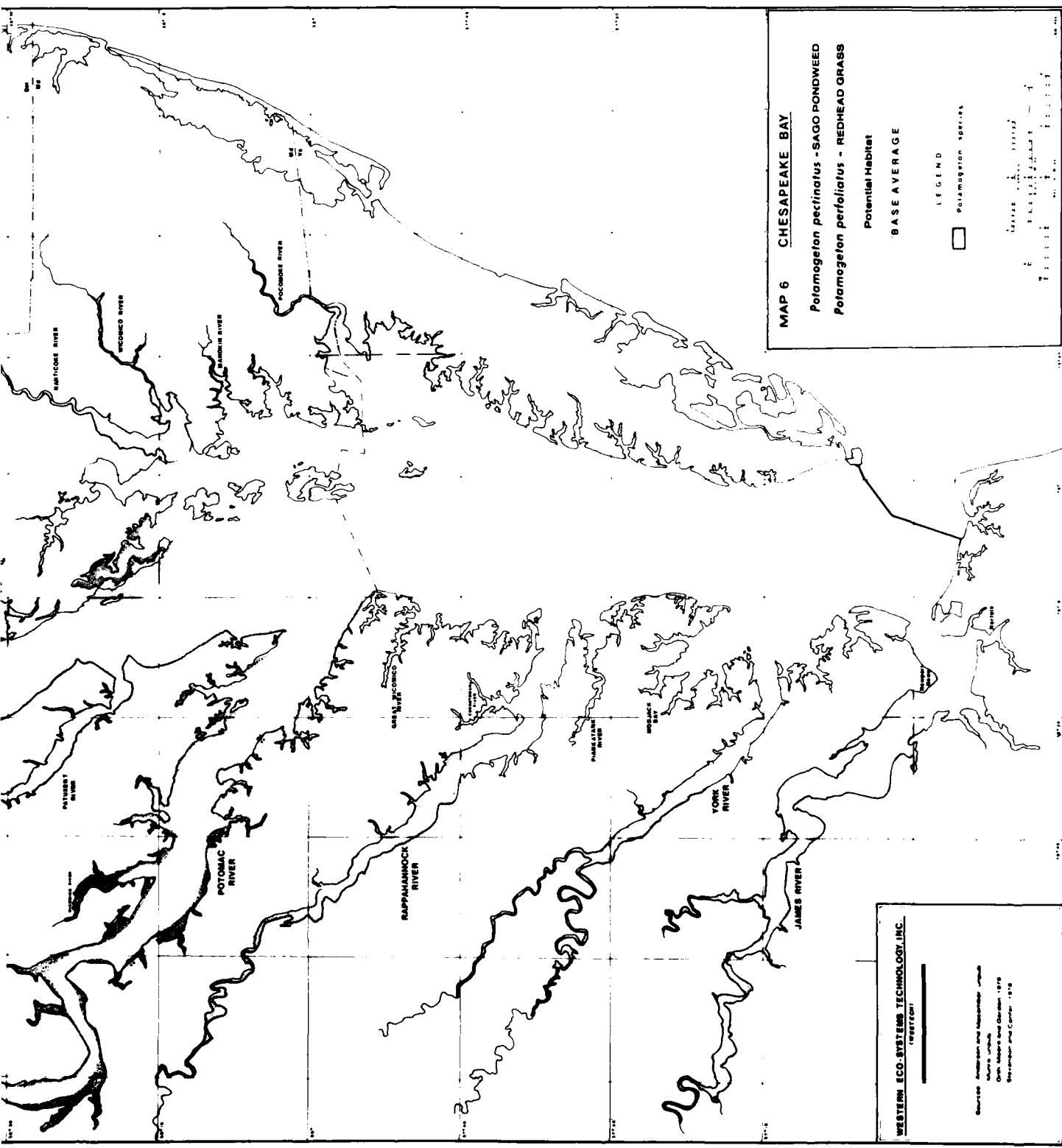


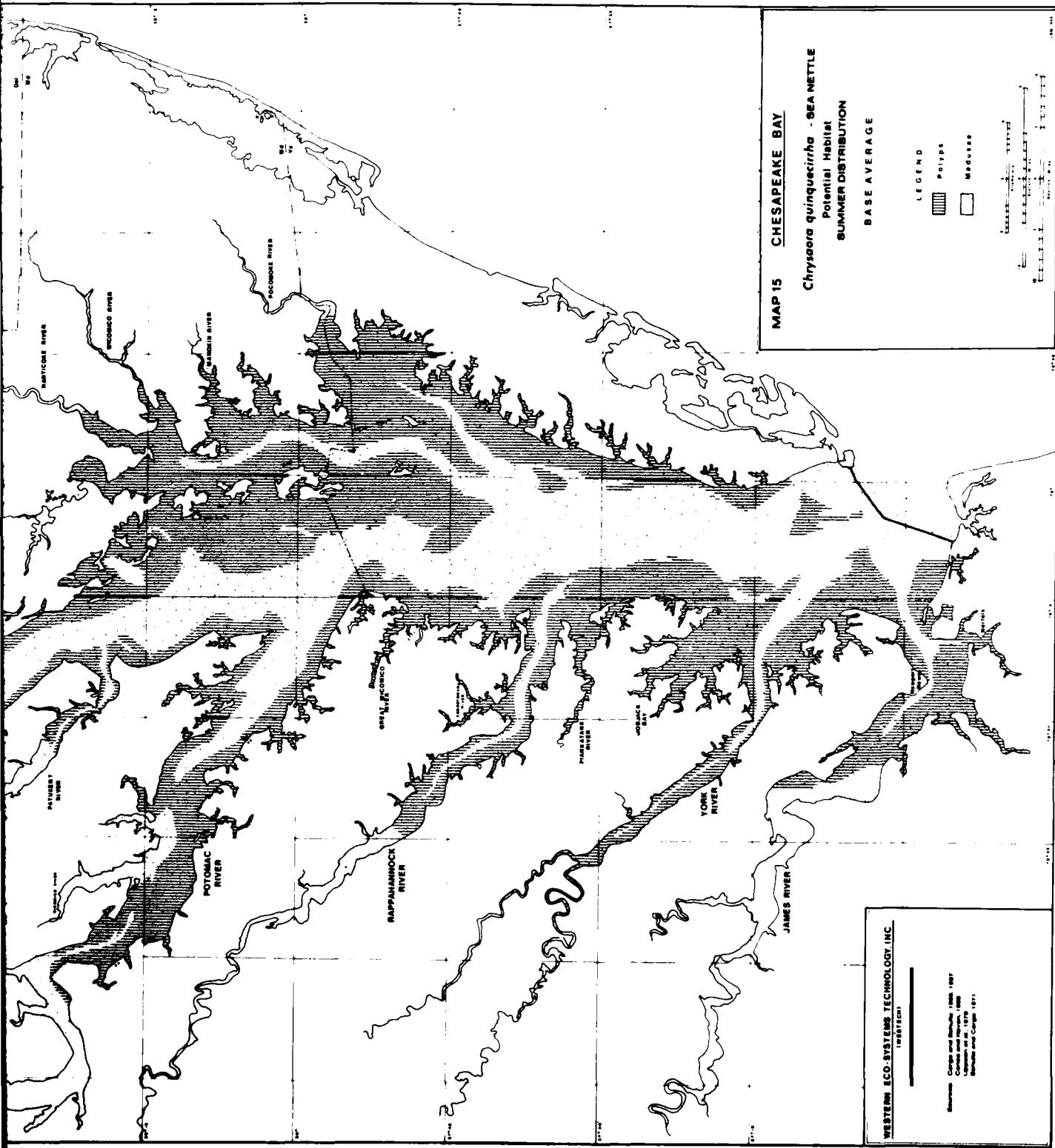
Plate 41

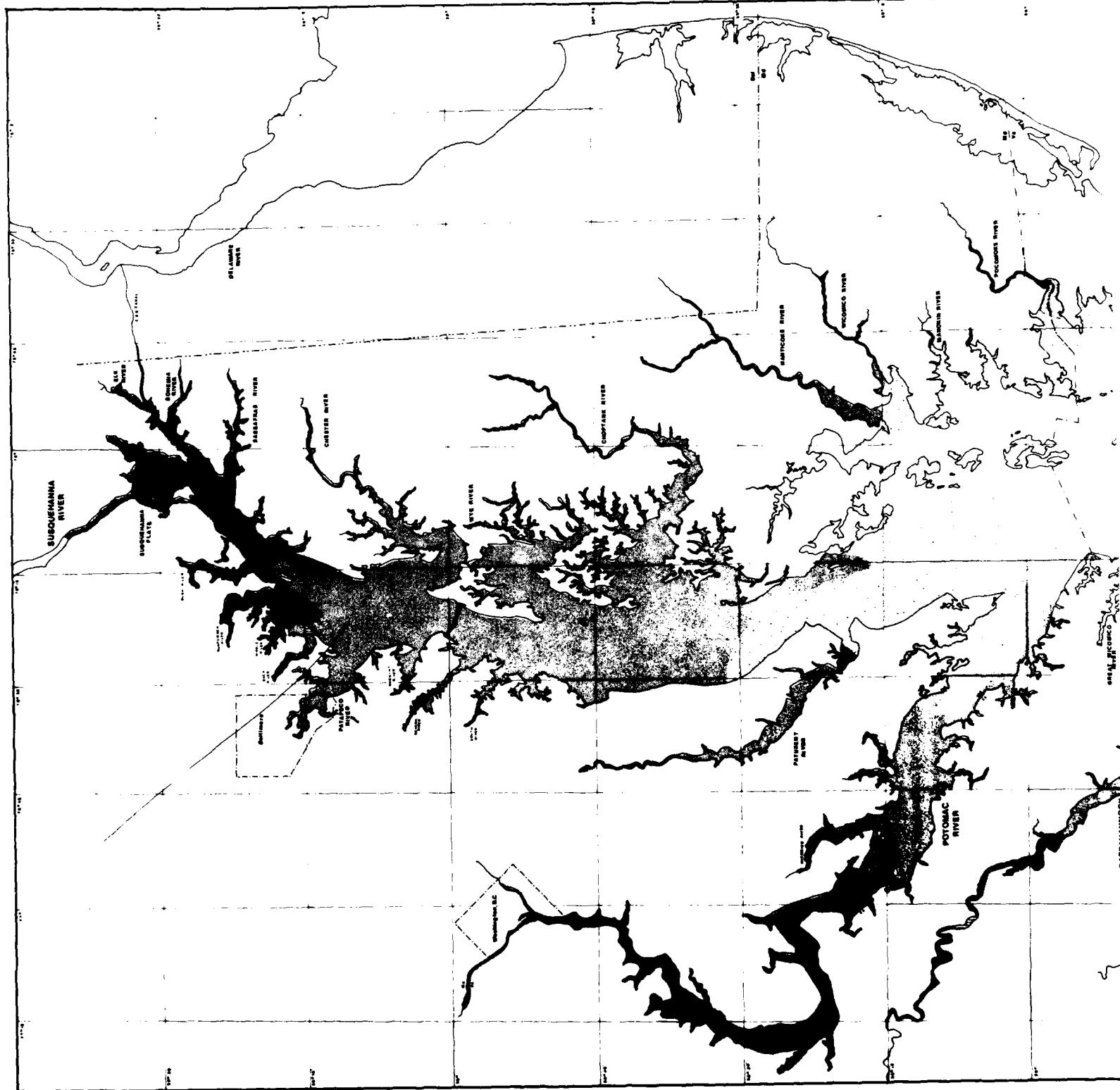


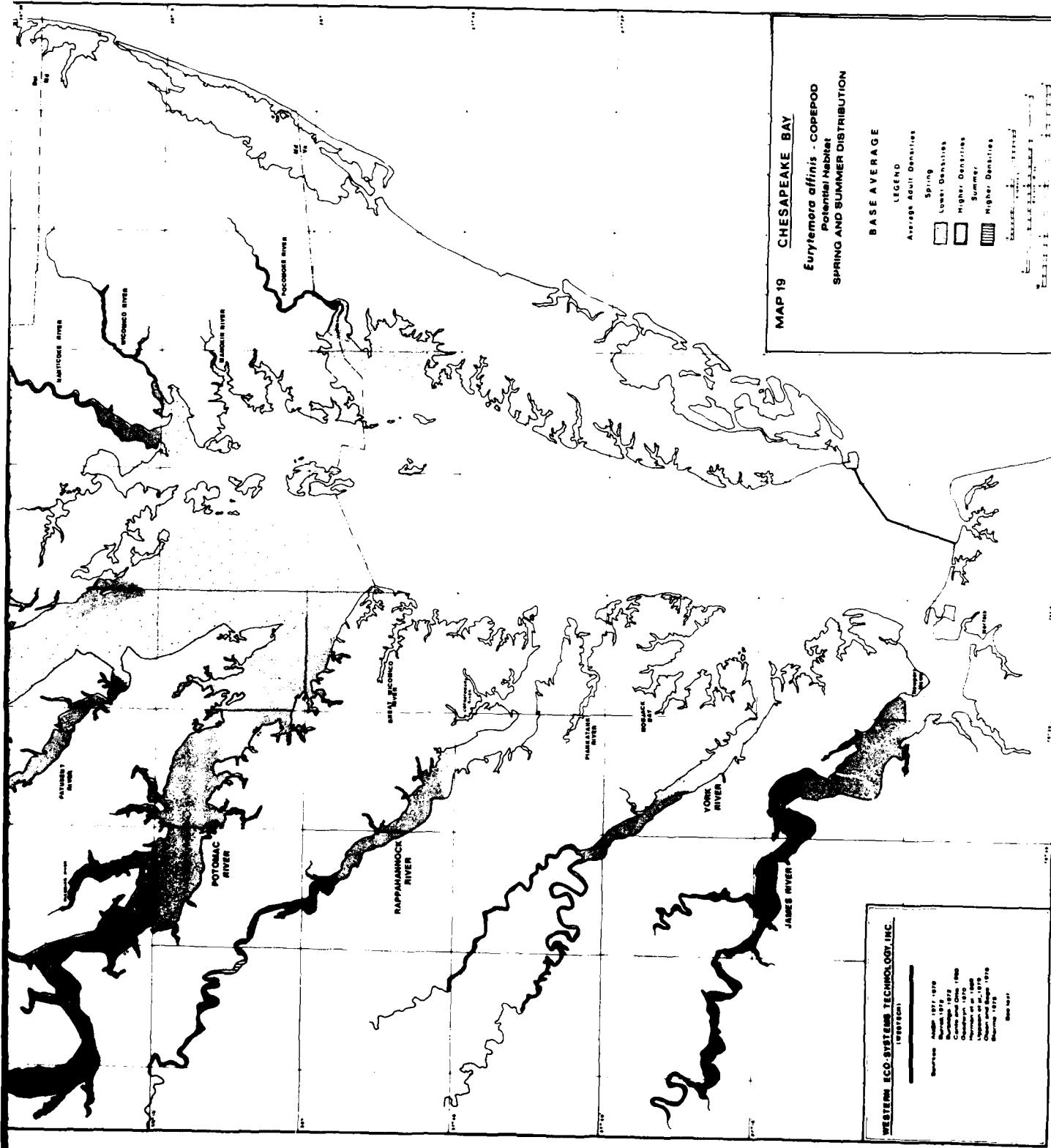


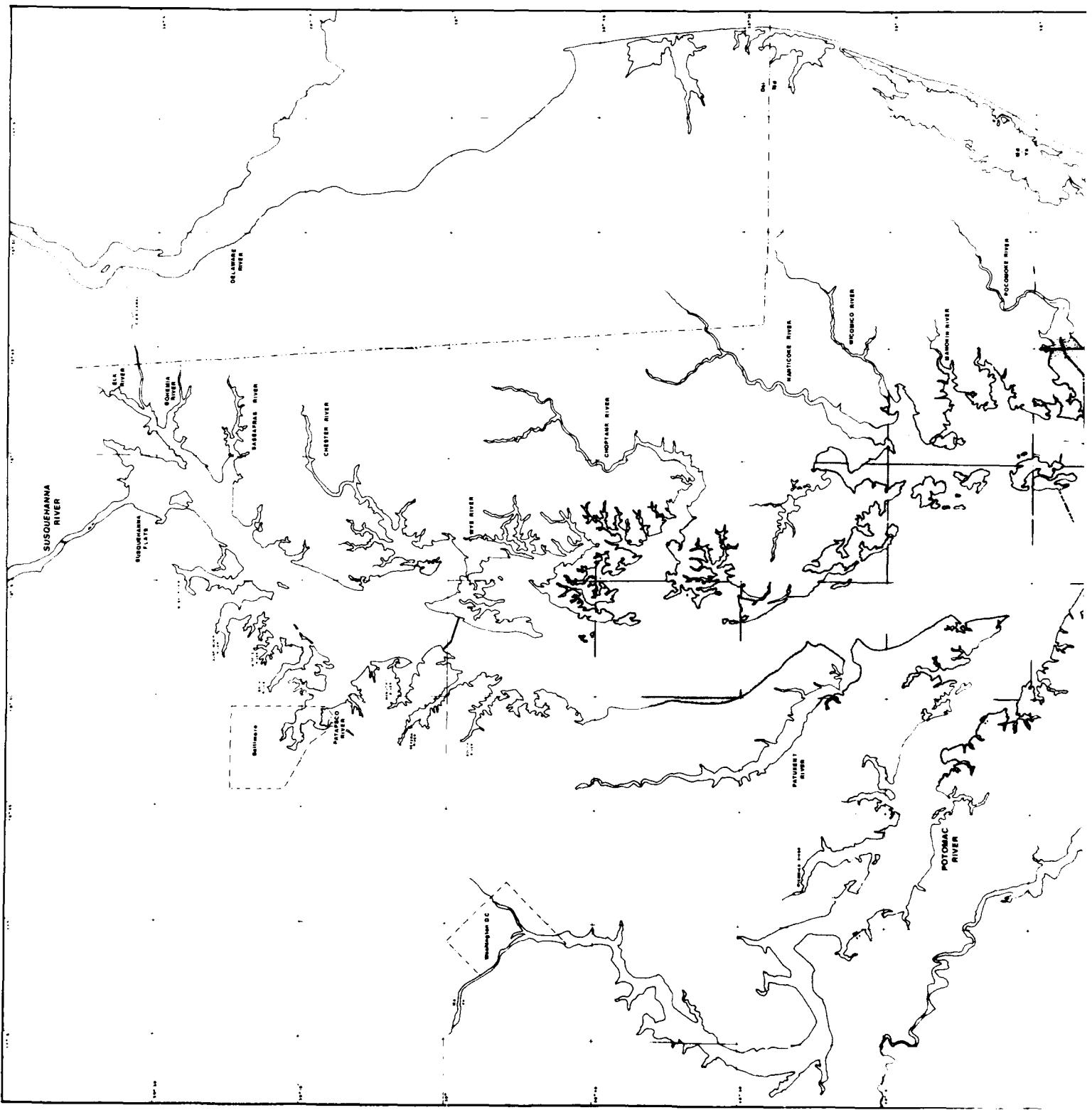












AD-A125 154 CHESAPEAKE BAY LOW FRESHWATER INFLOW STUDY PHASE II
BIOTA ASSESSMENT MAP. (U) WESTERN ECO-SYSTEMS
TECHNOLOGY INC BOTHELL WA G B MACKIERNAN ET AL. MAY 82

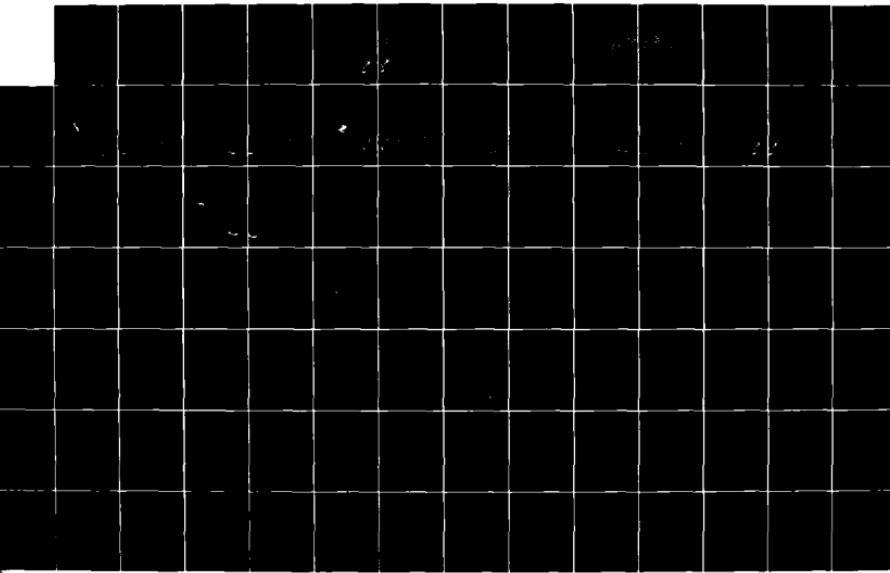
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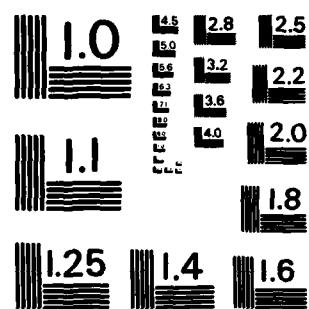
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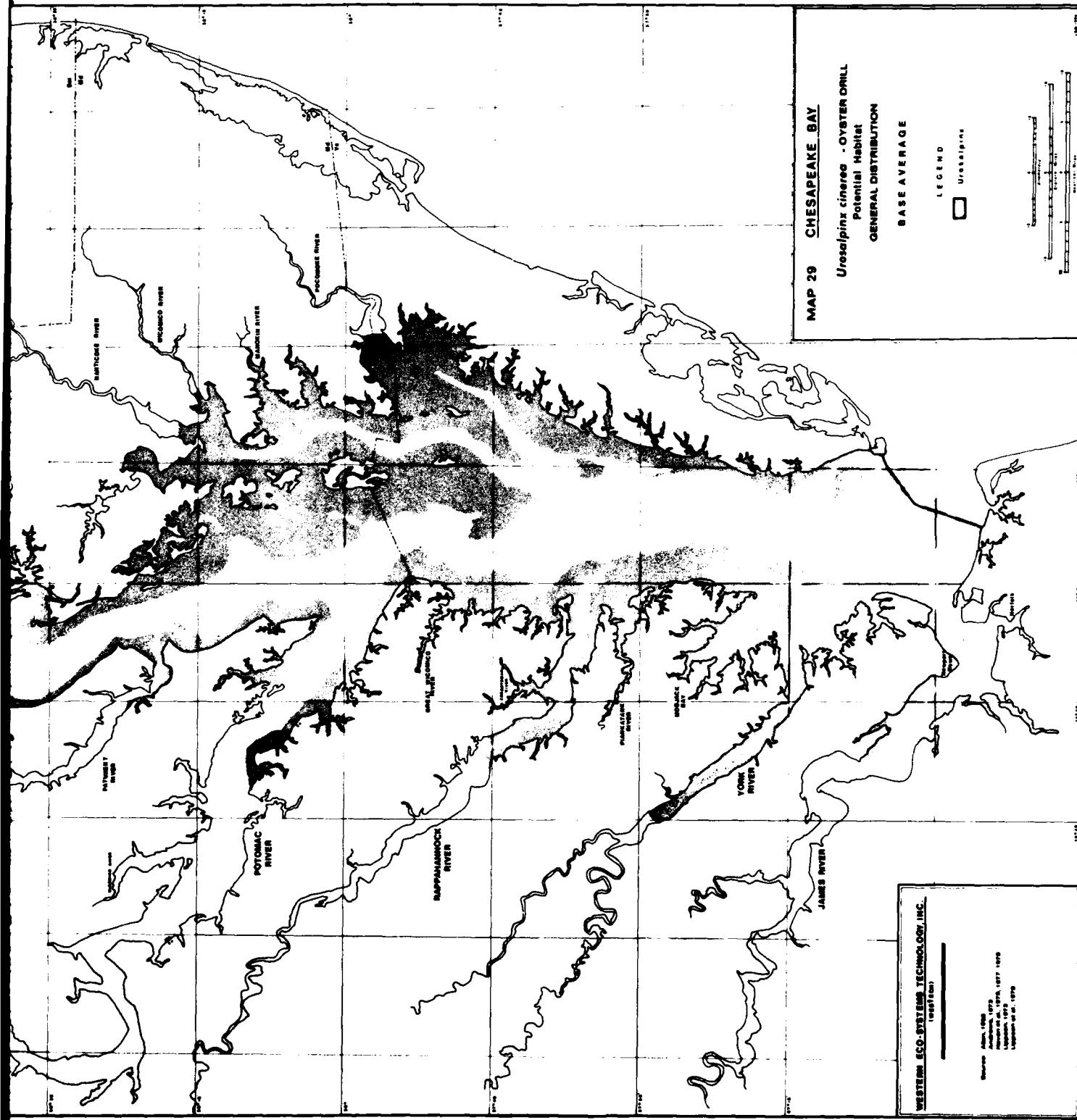
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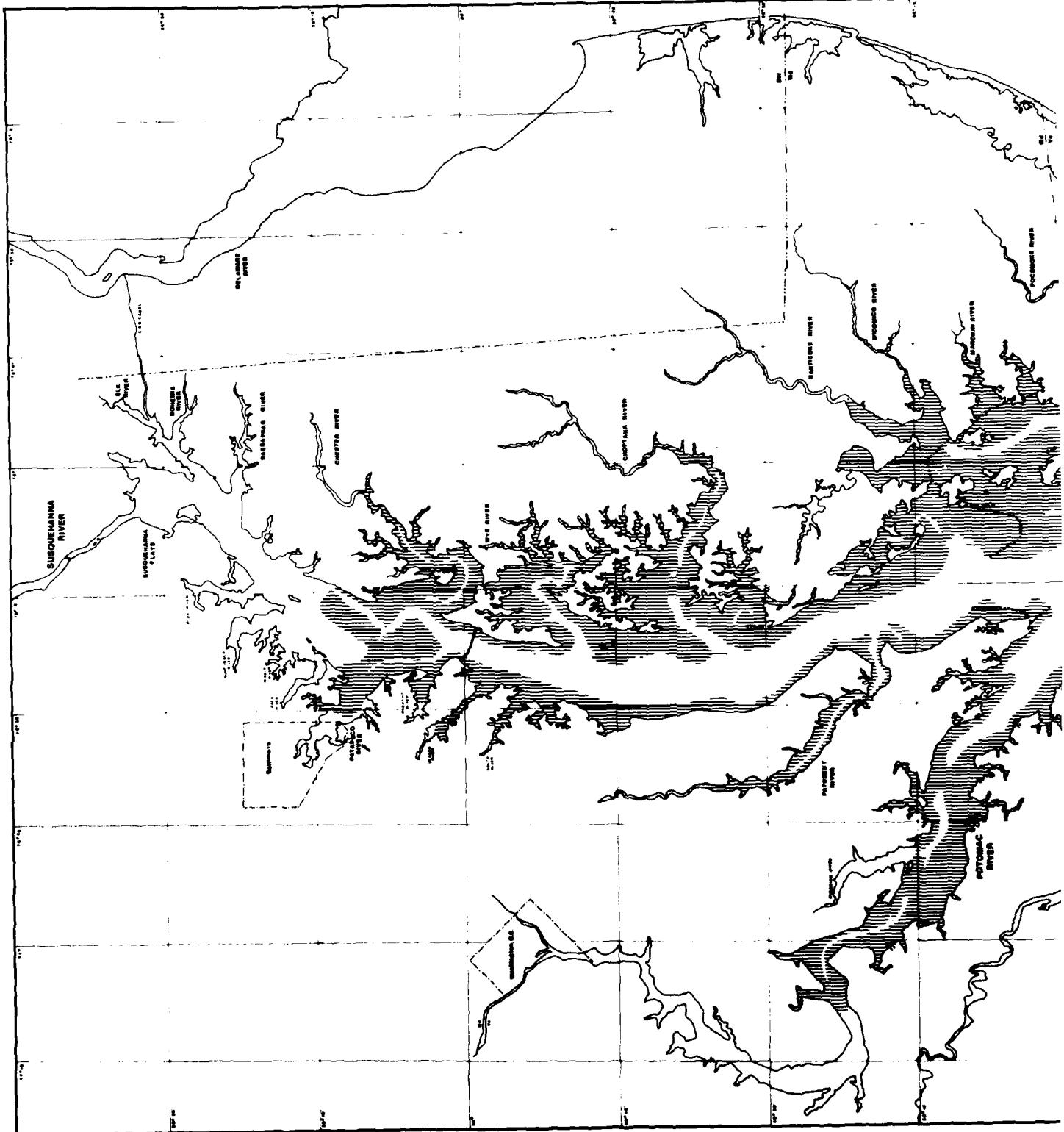
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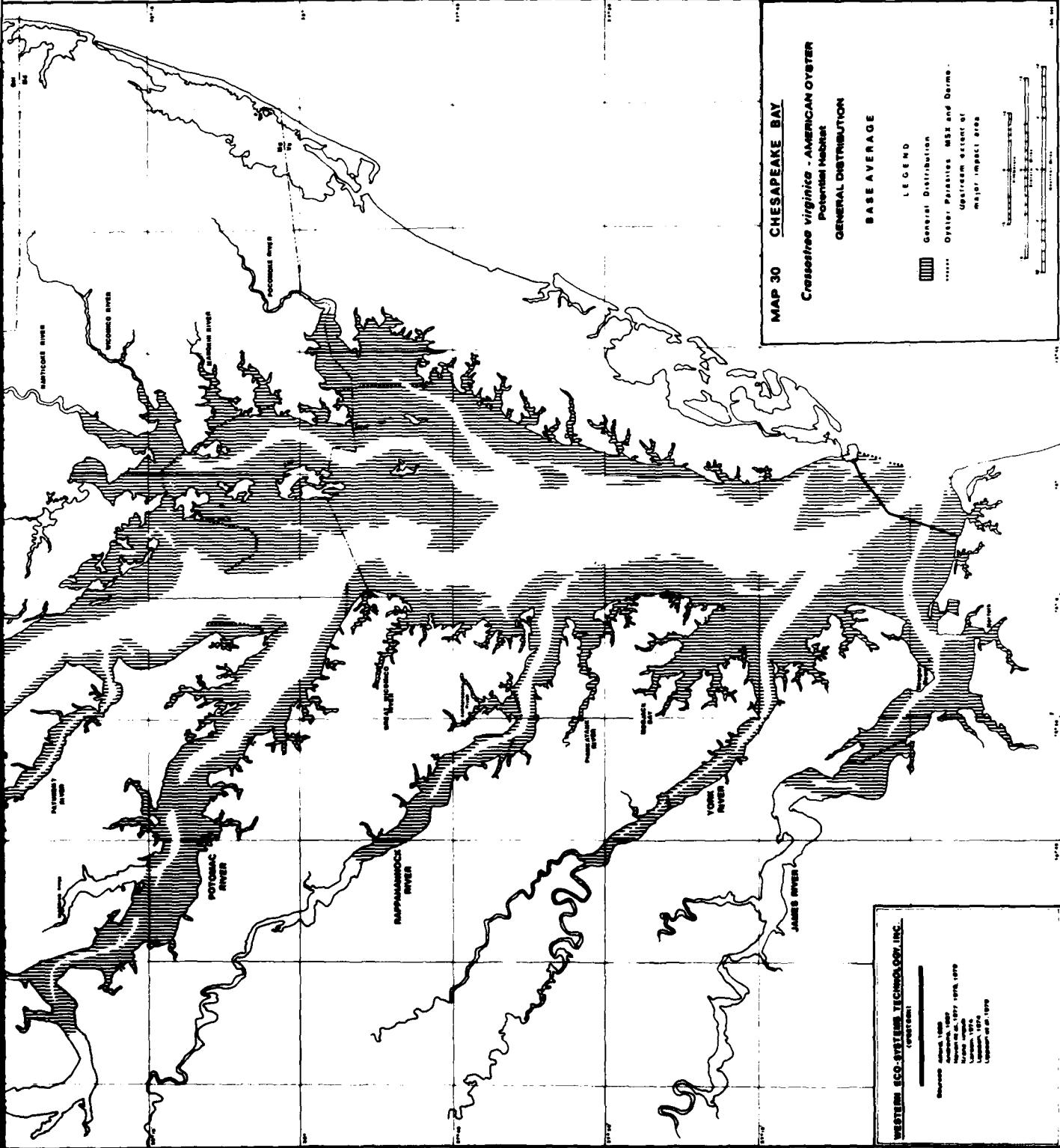
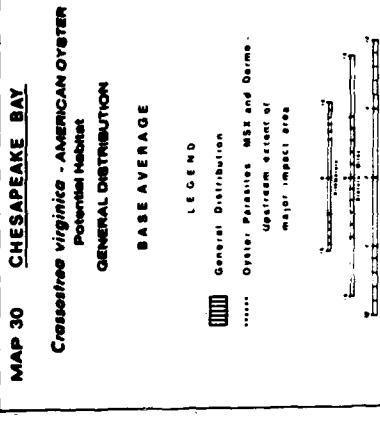


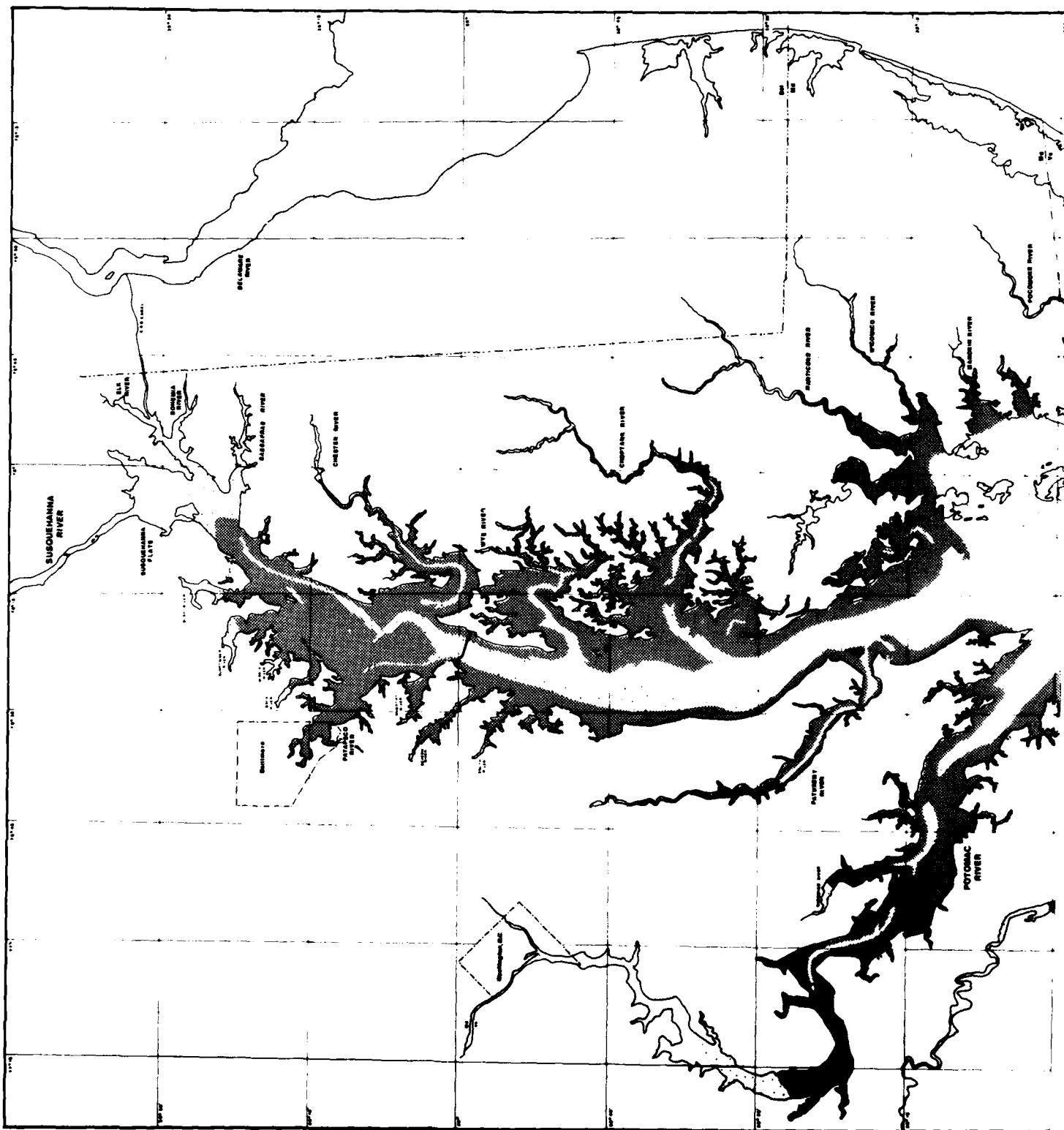


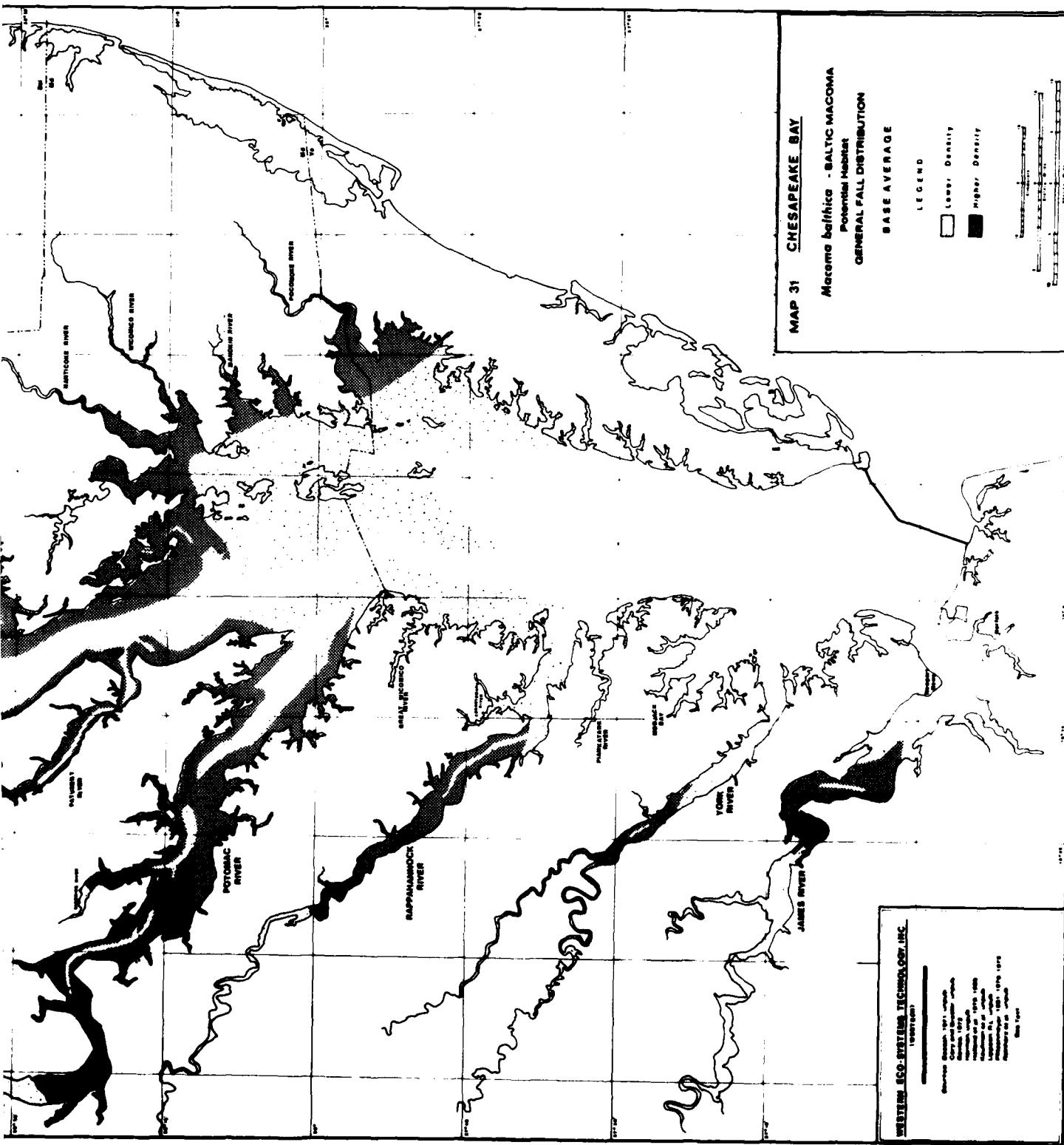
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS - 1963 - A

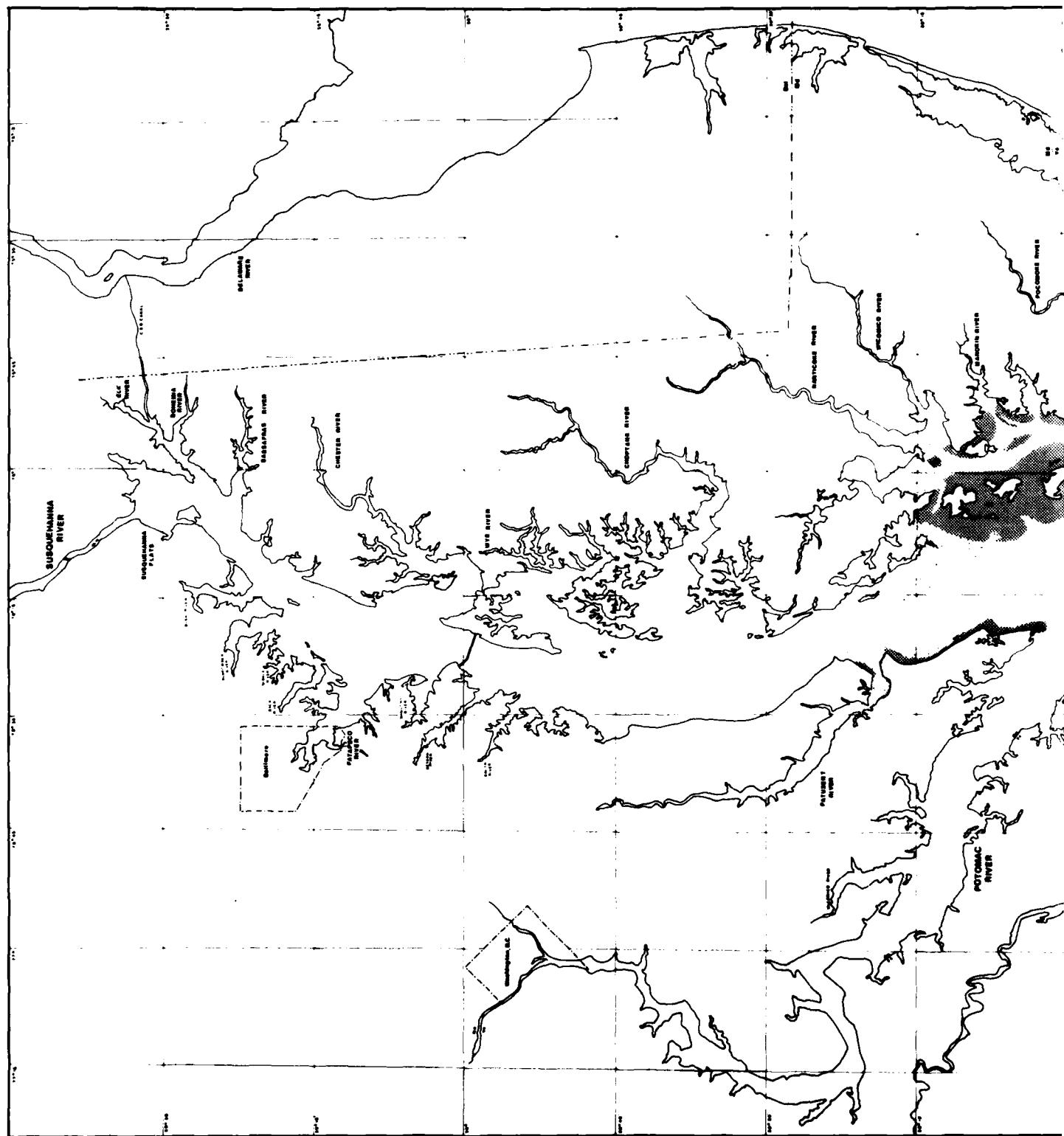


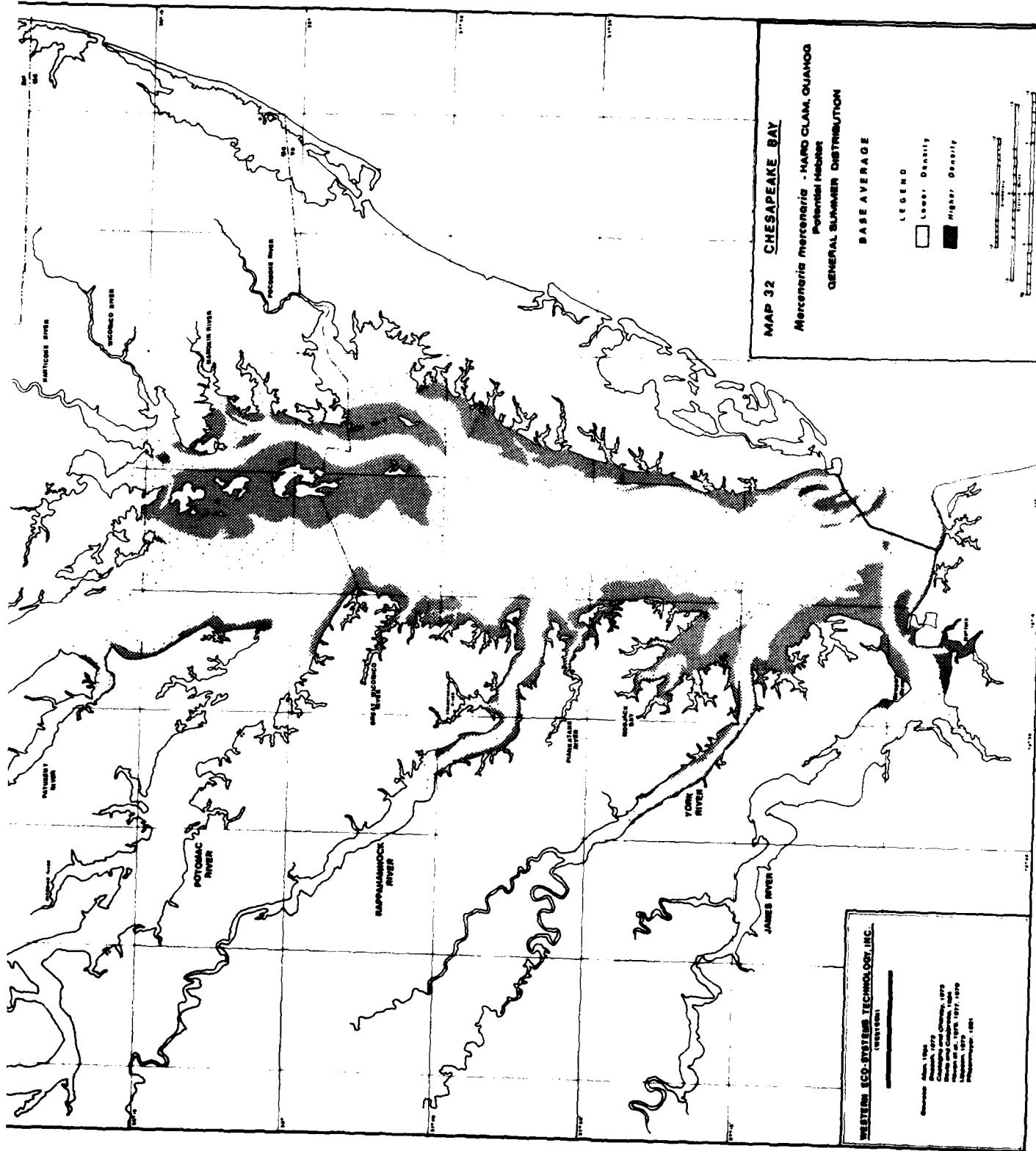




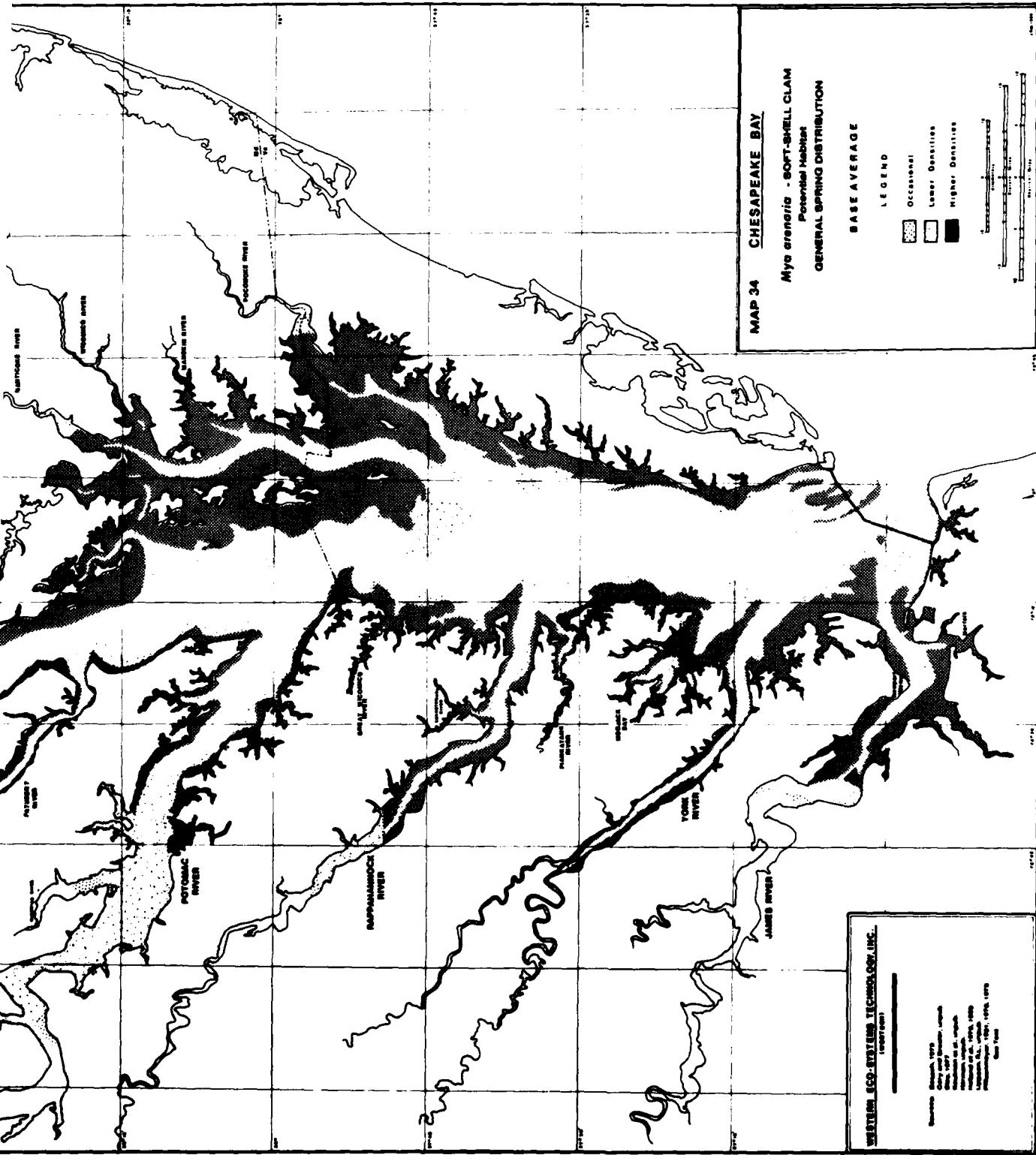


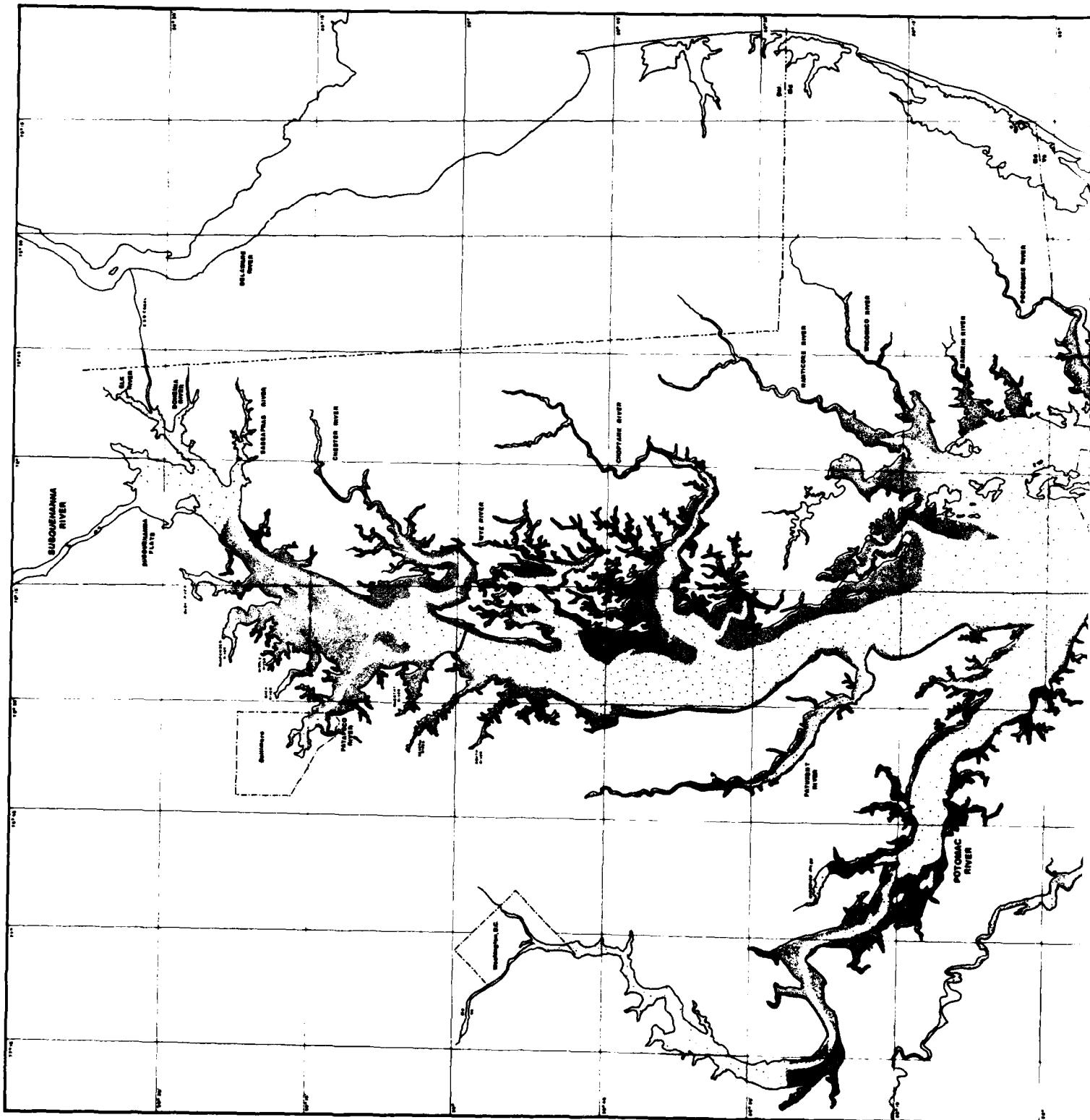


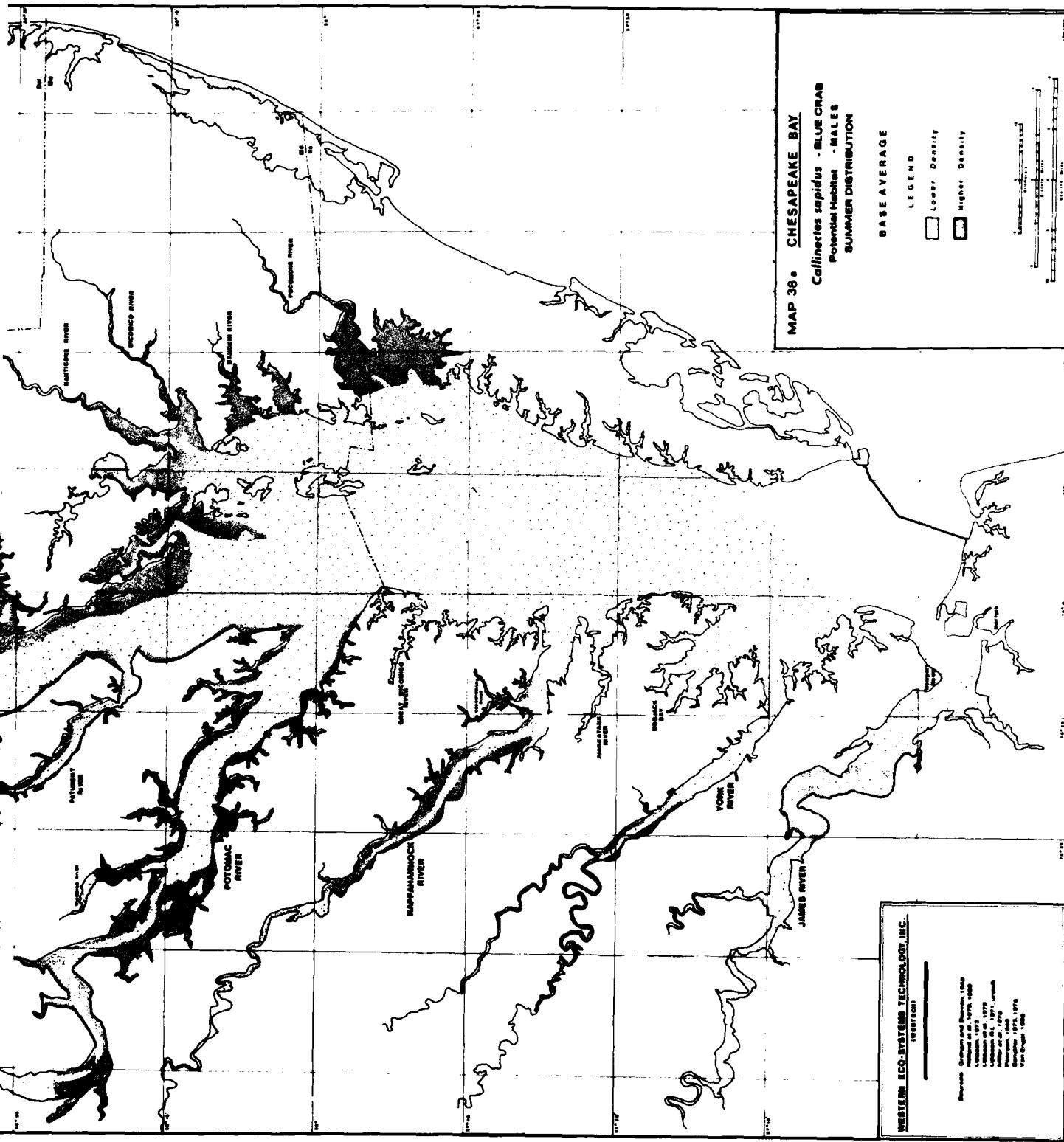


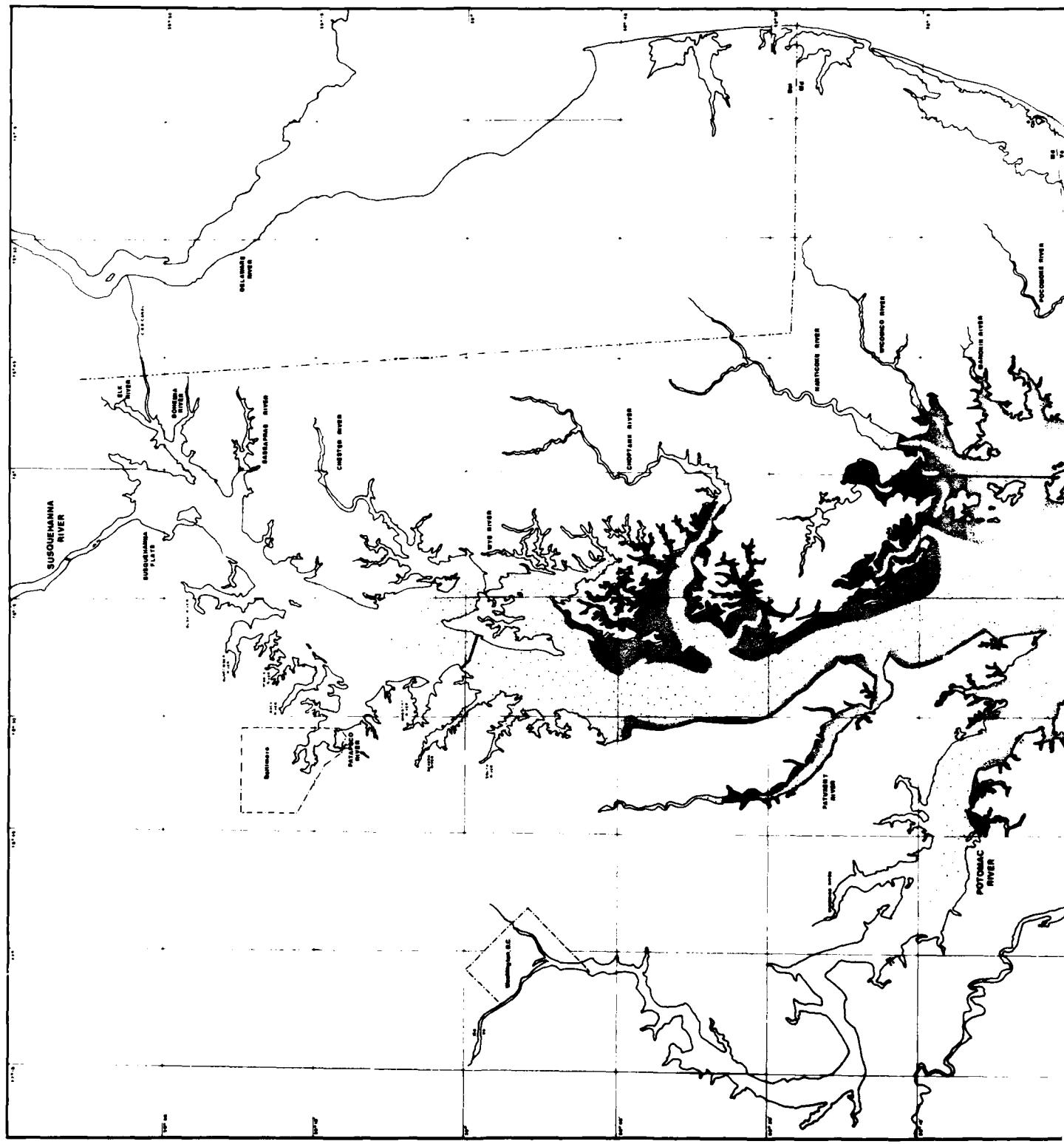












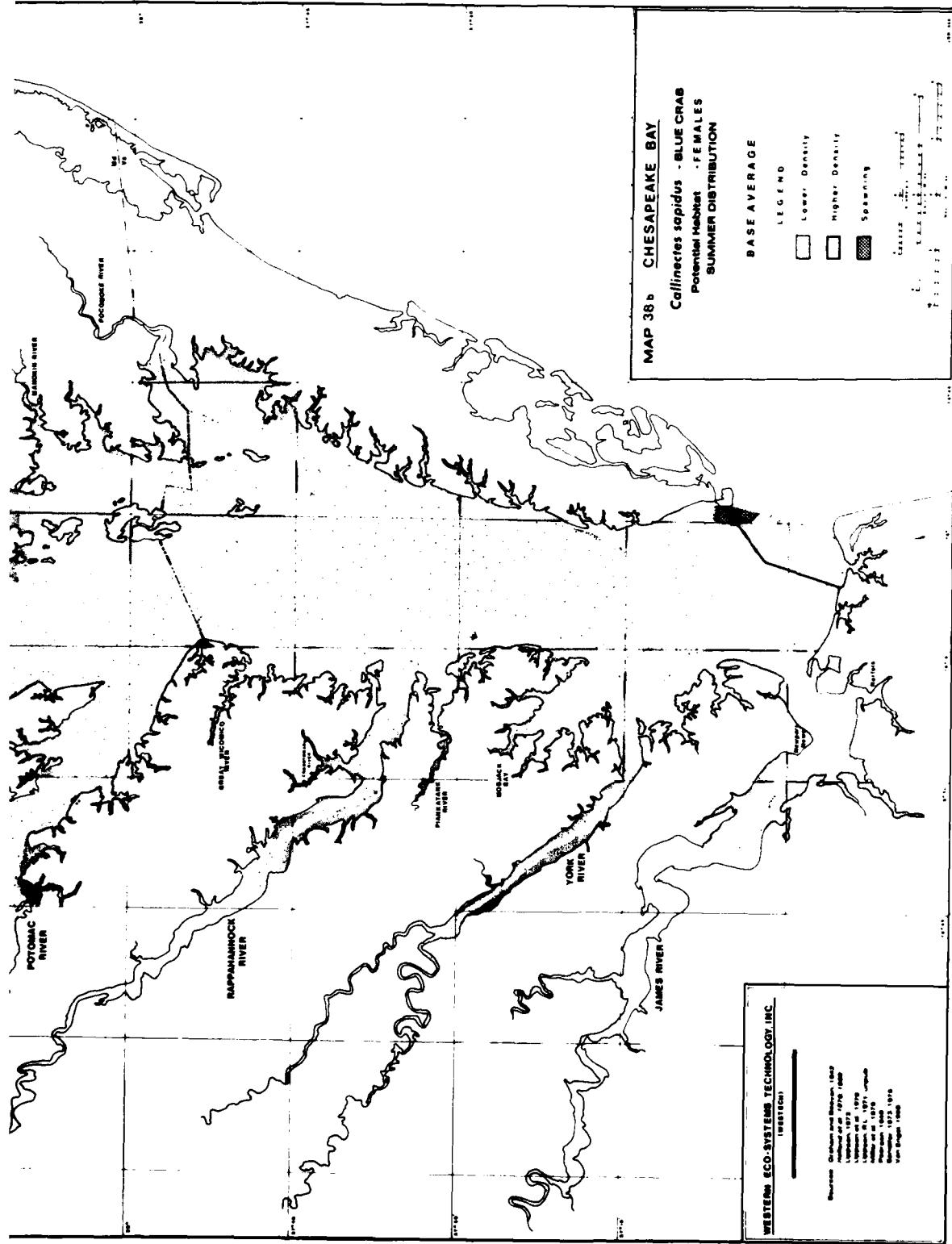
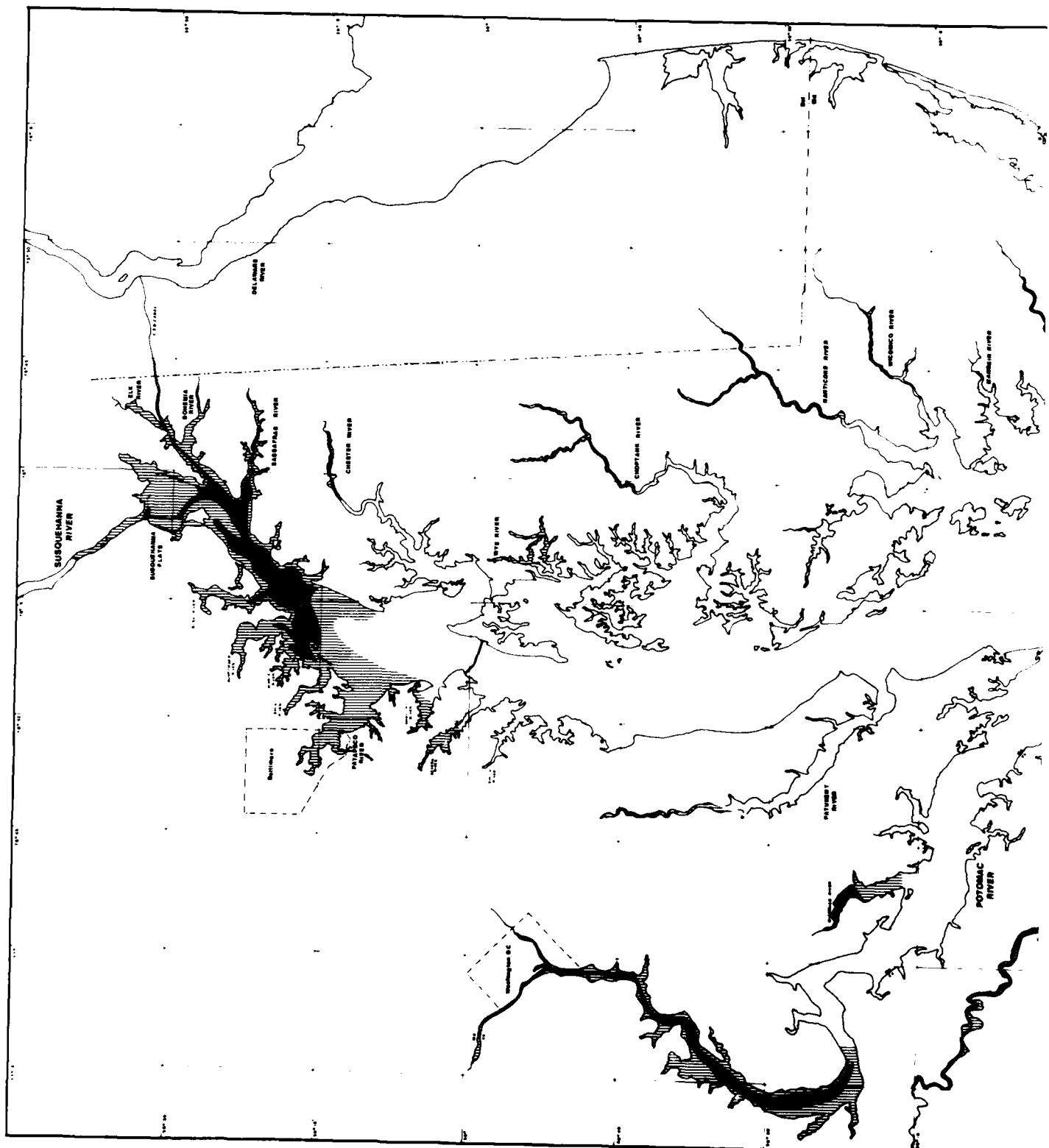
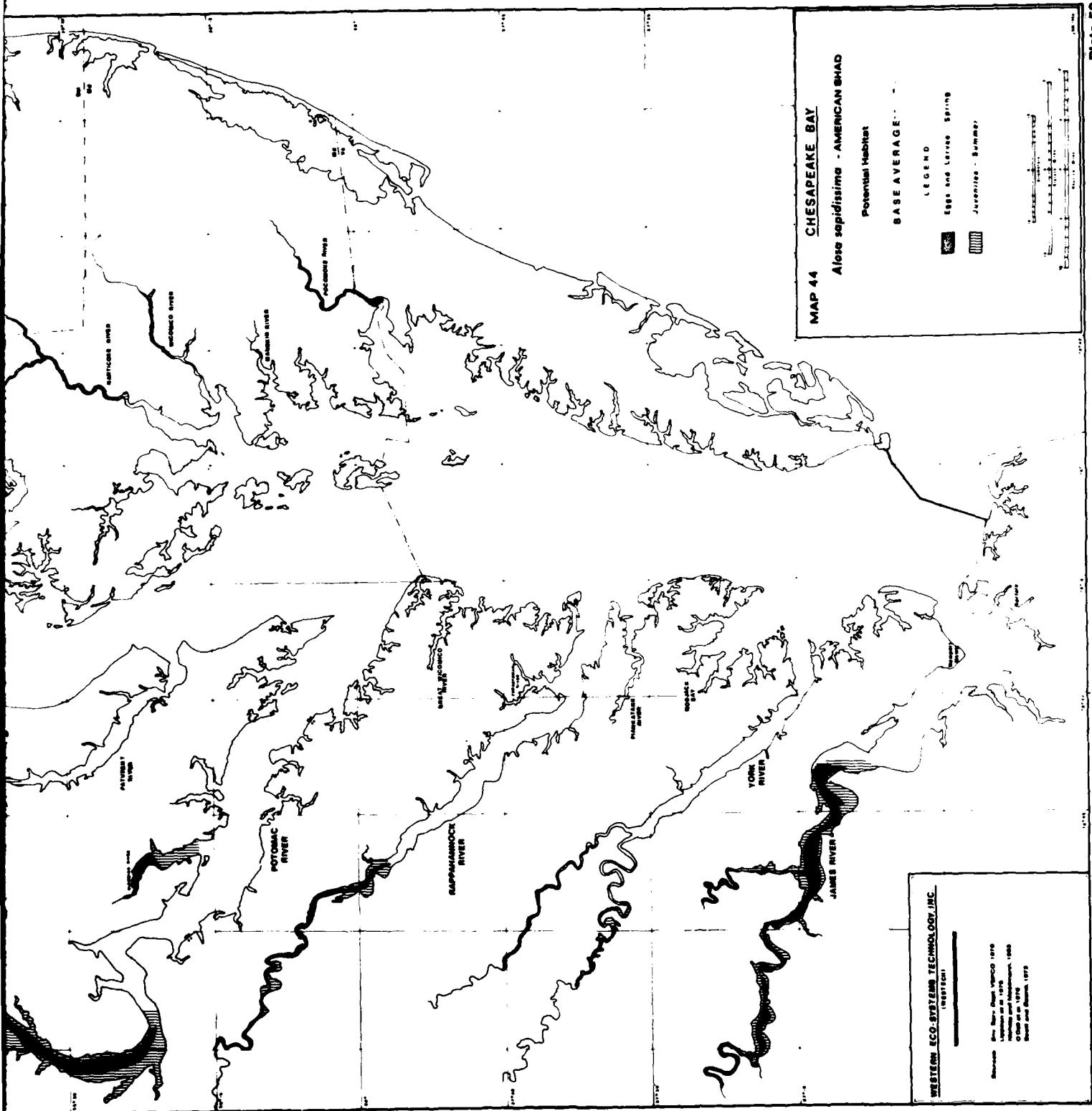
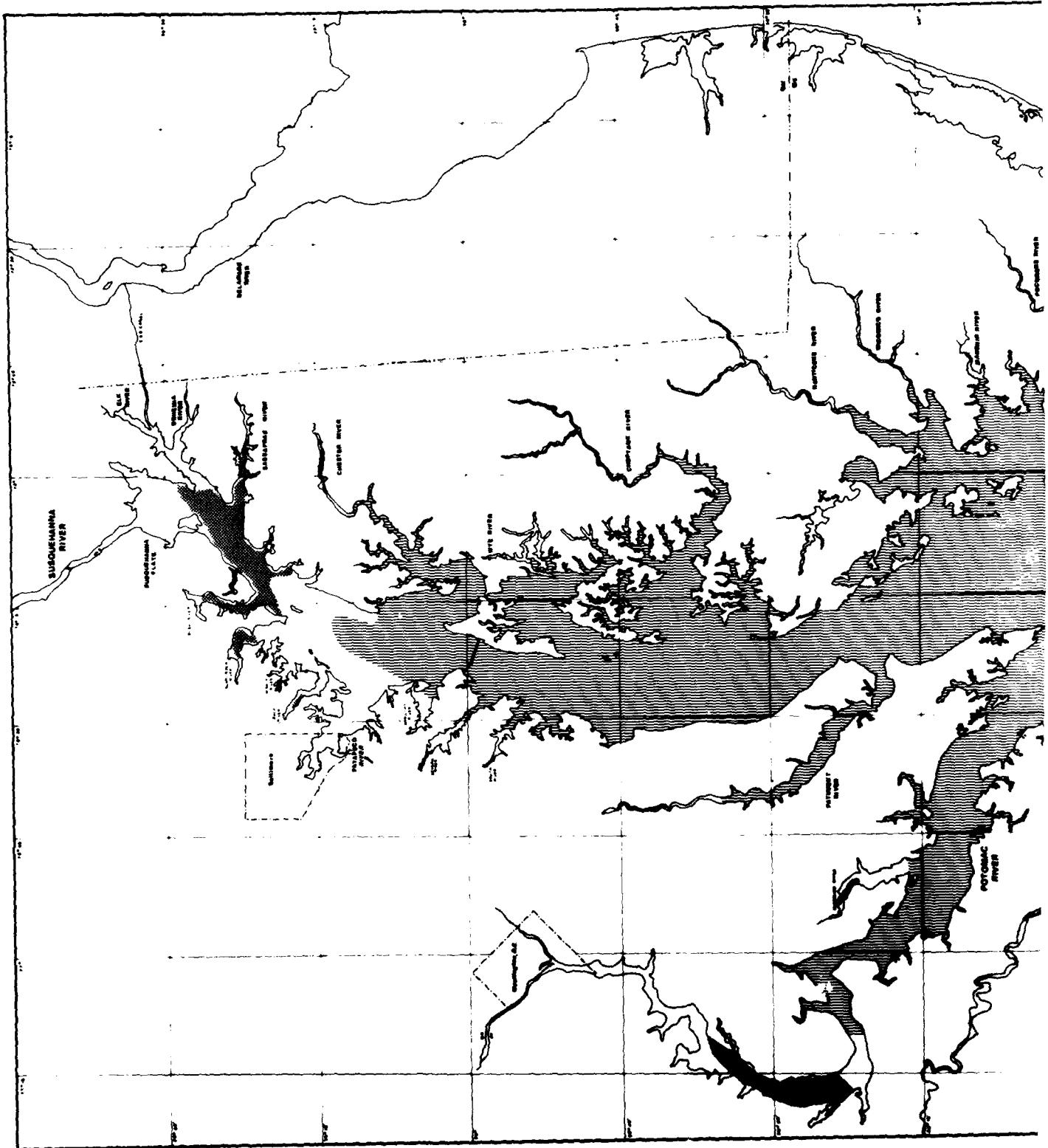
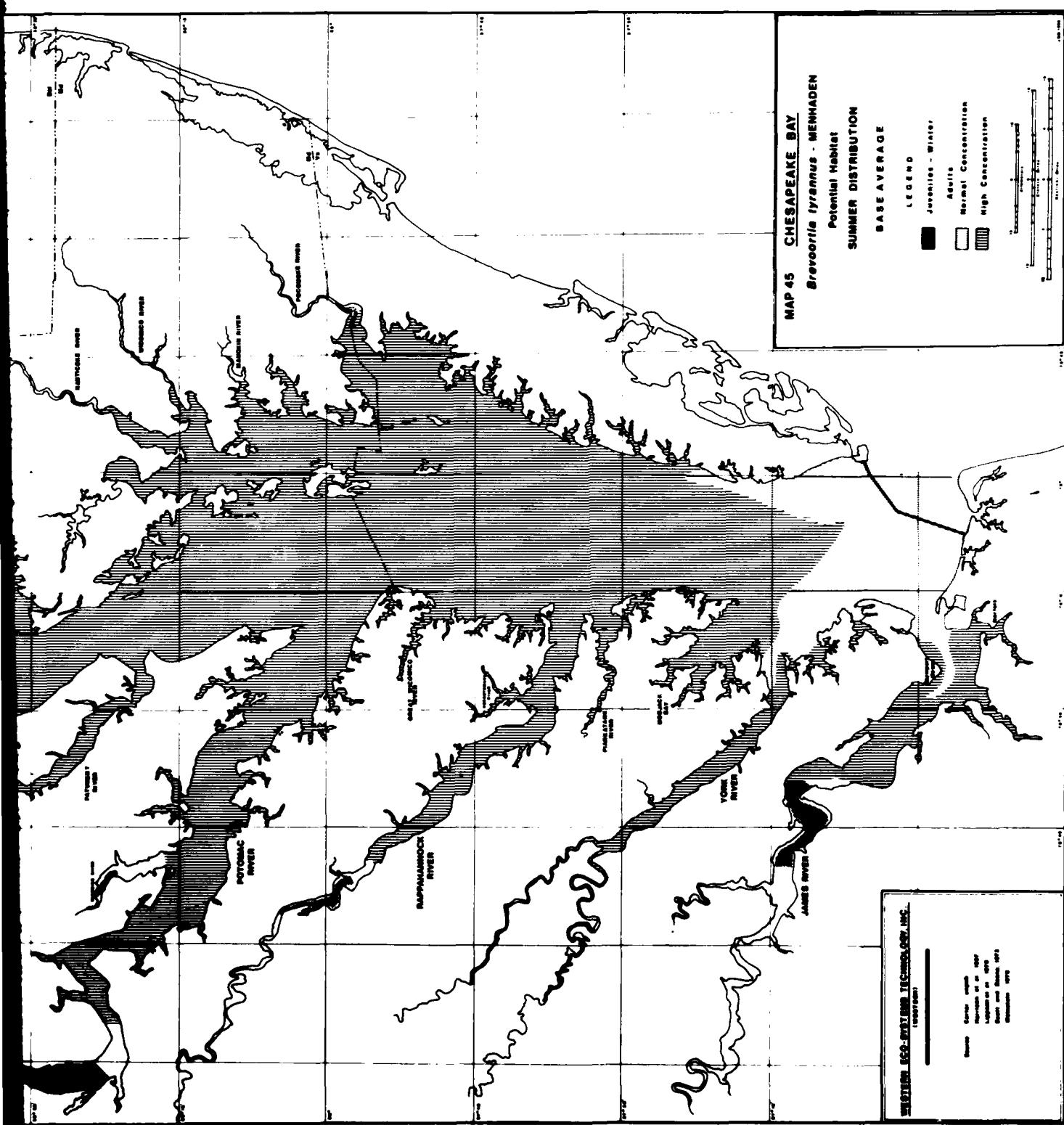


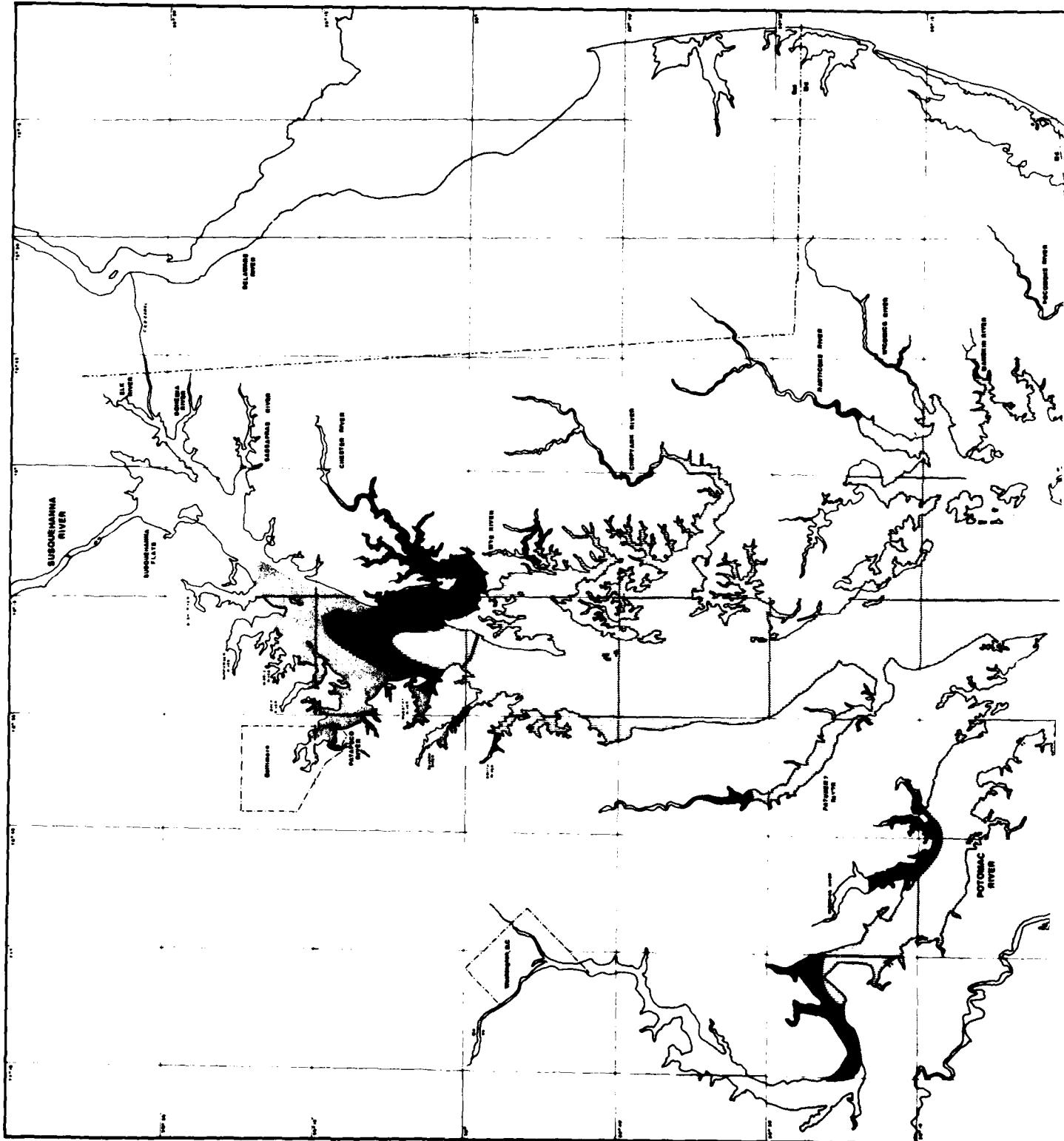
Plate 51

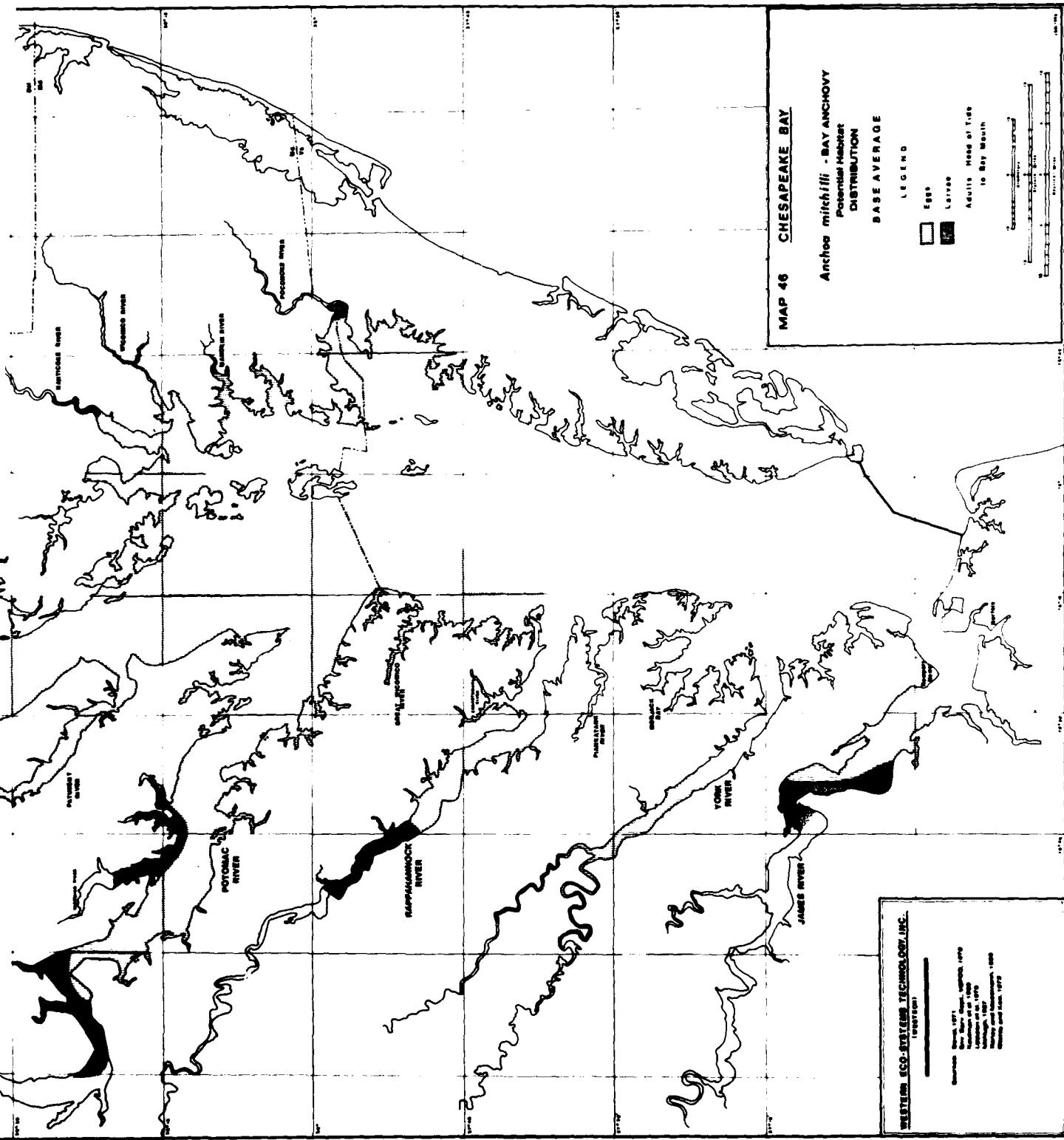




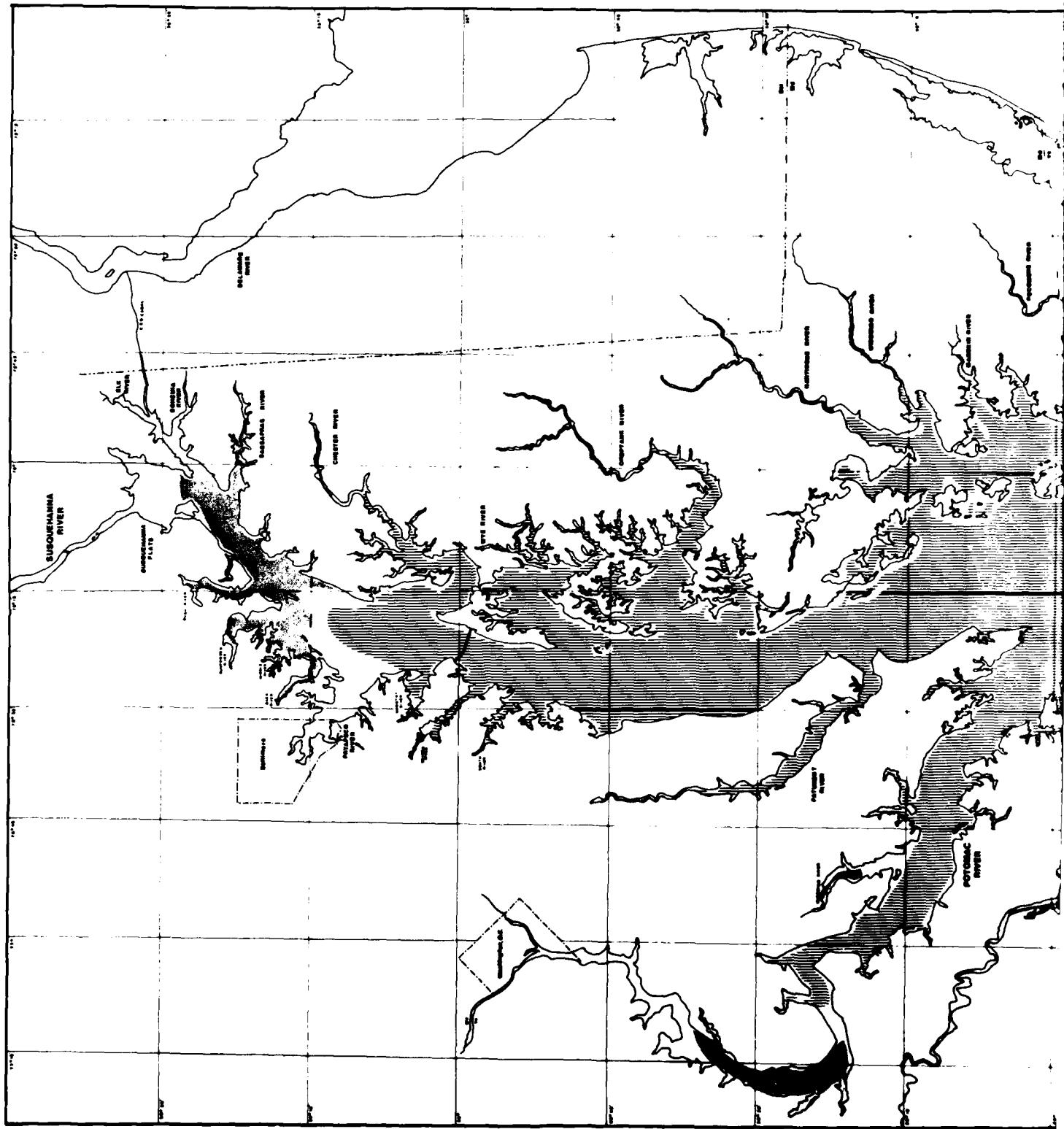


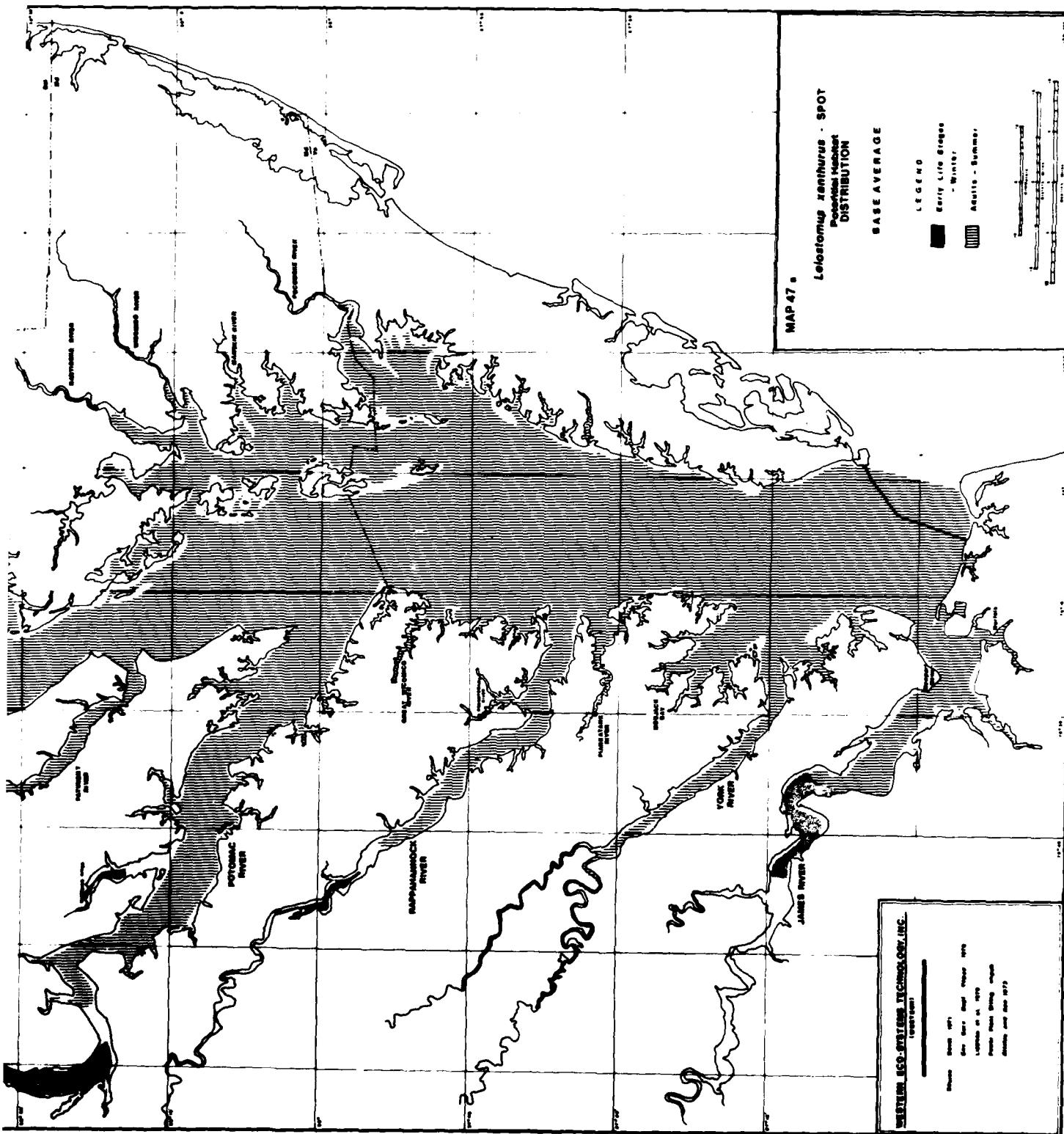


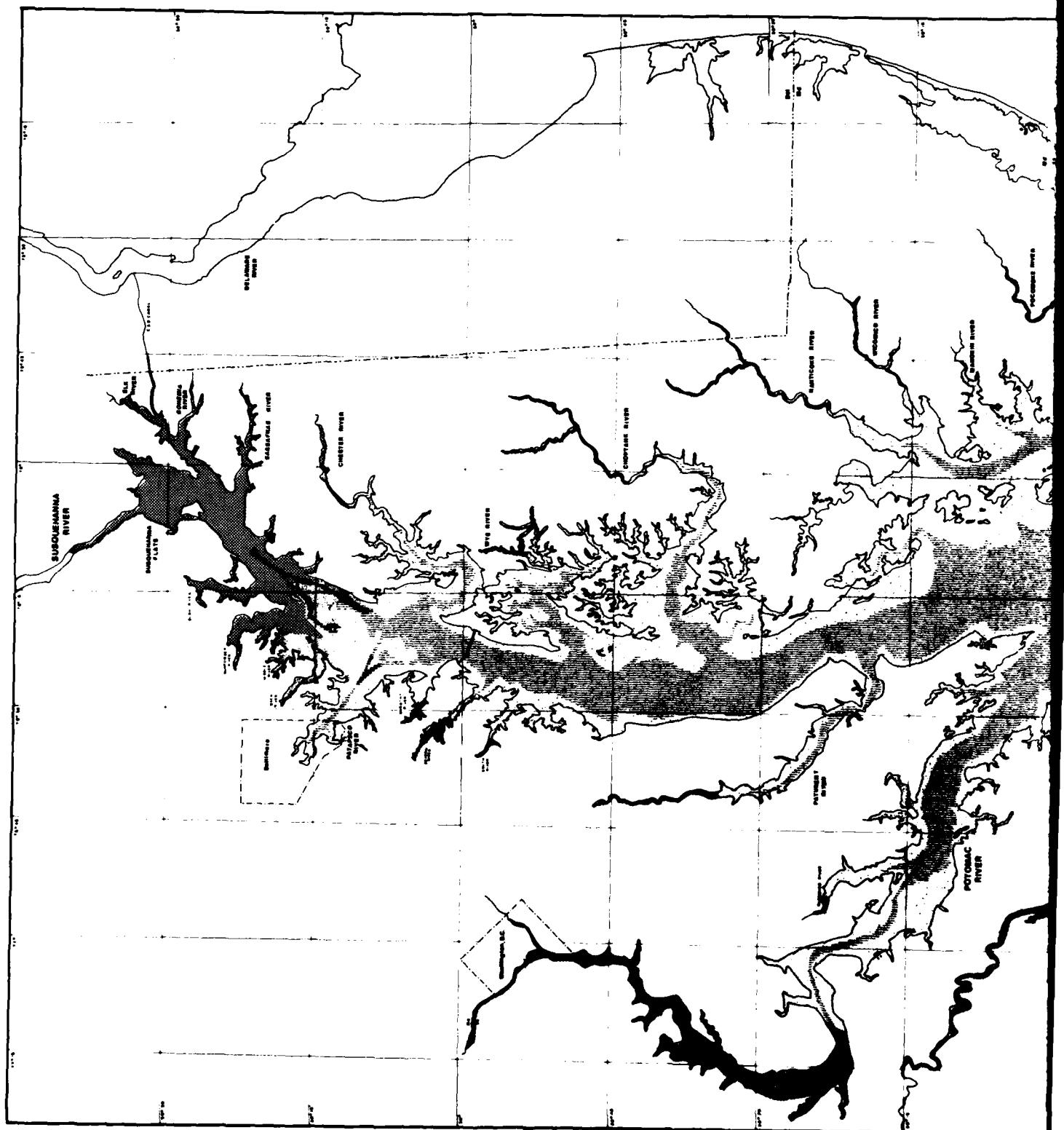




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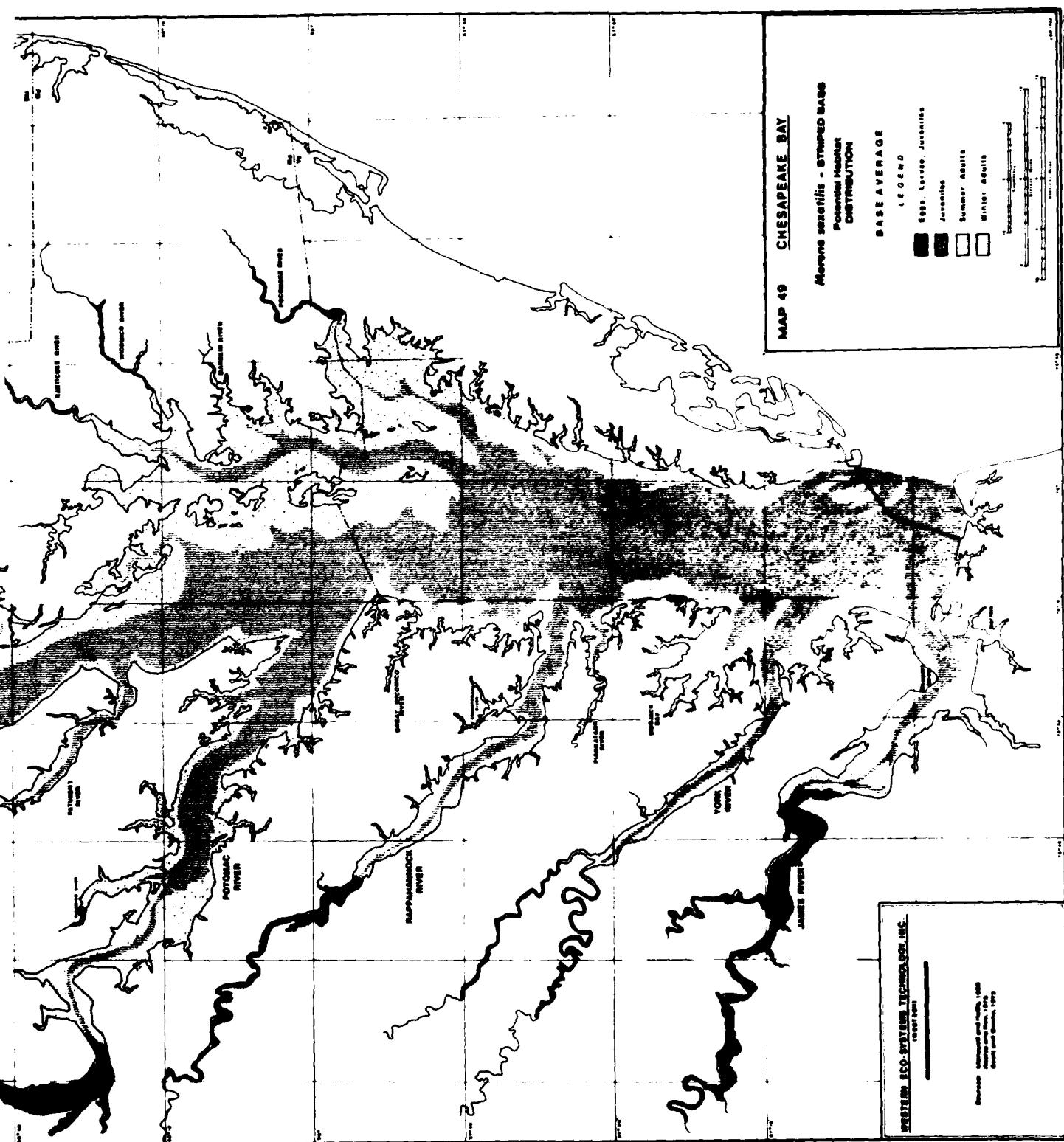
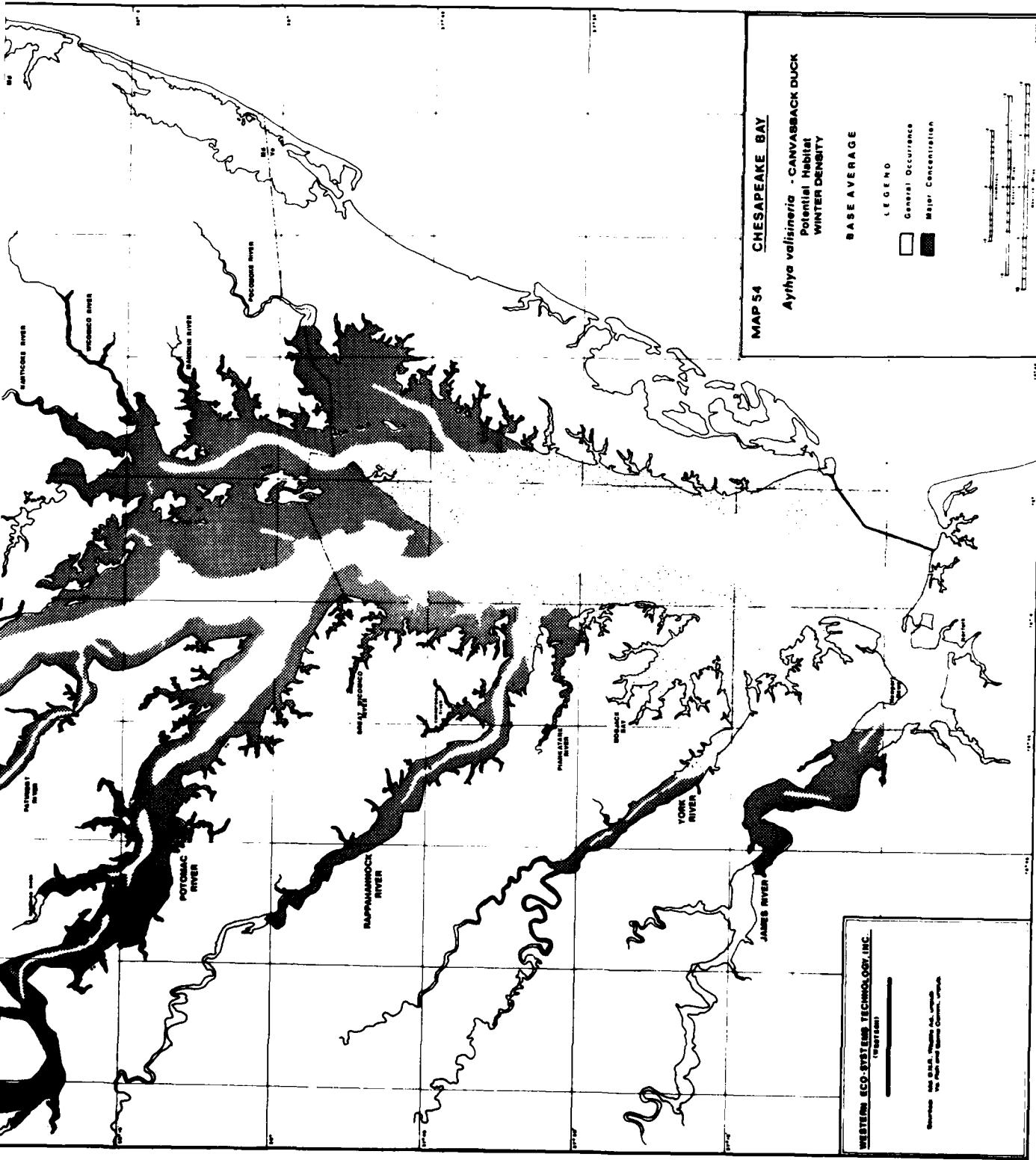




Plate 57



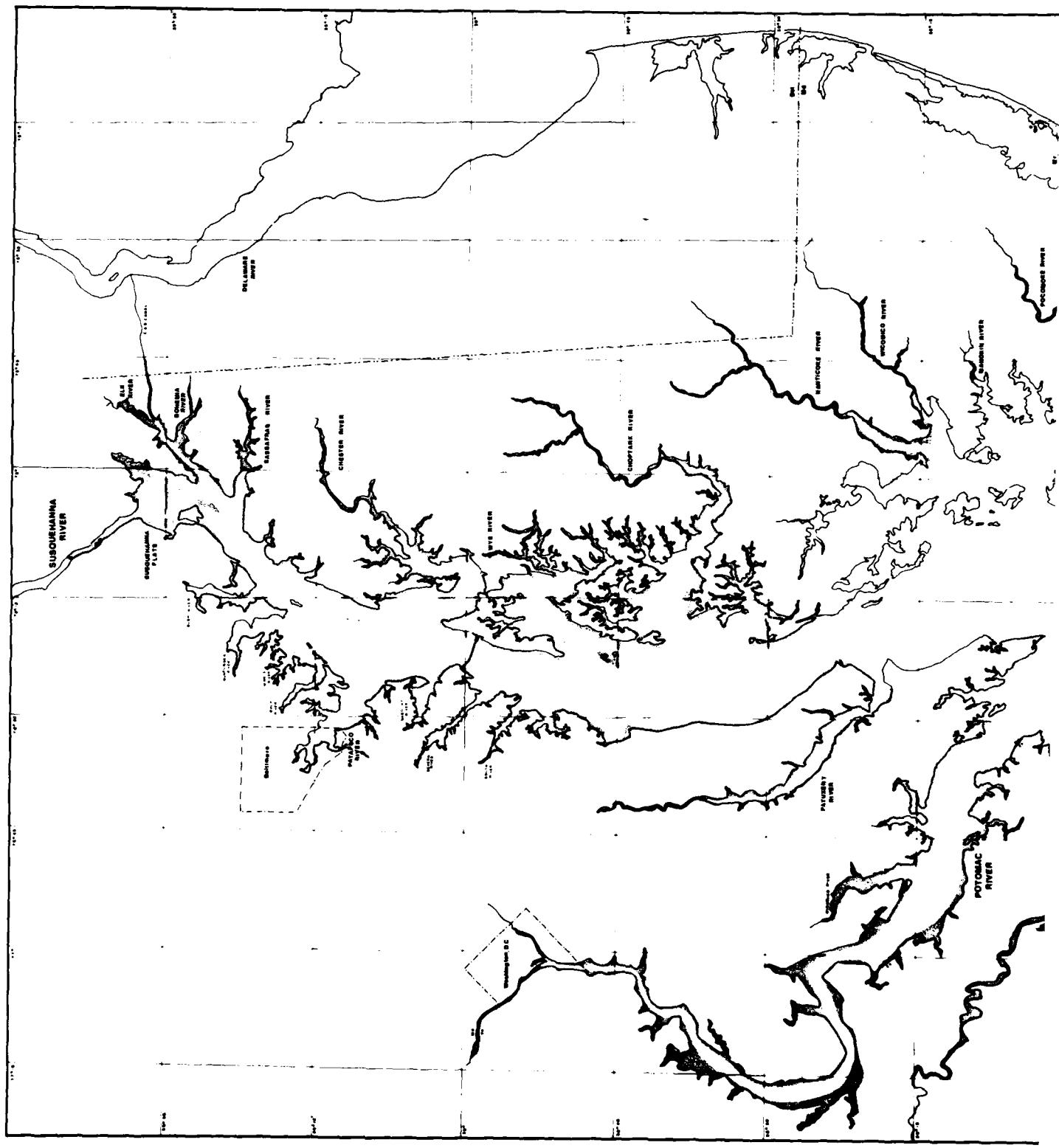
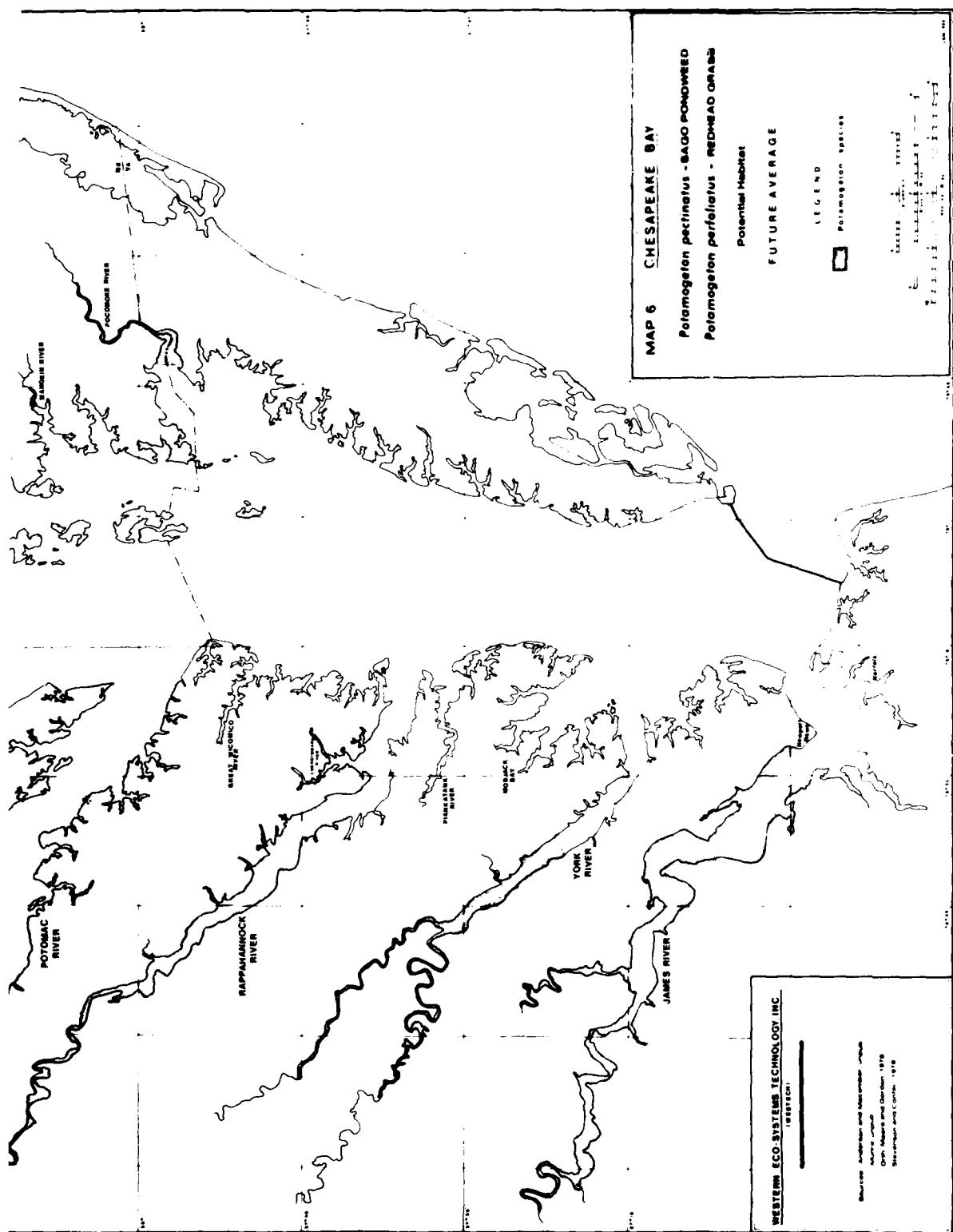
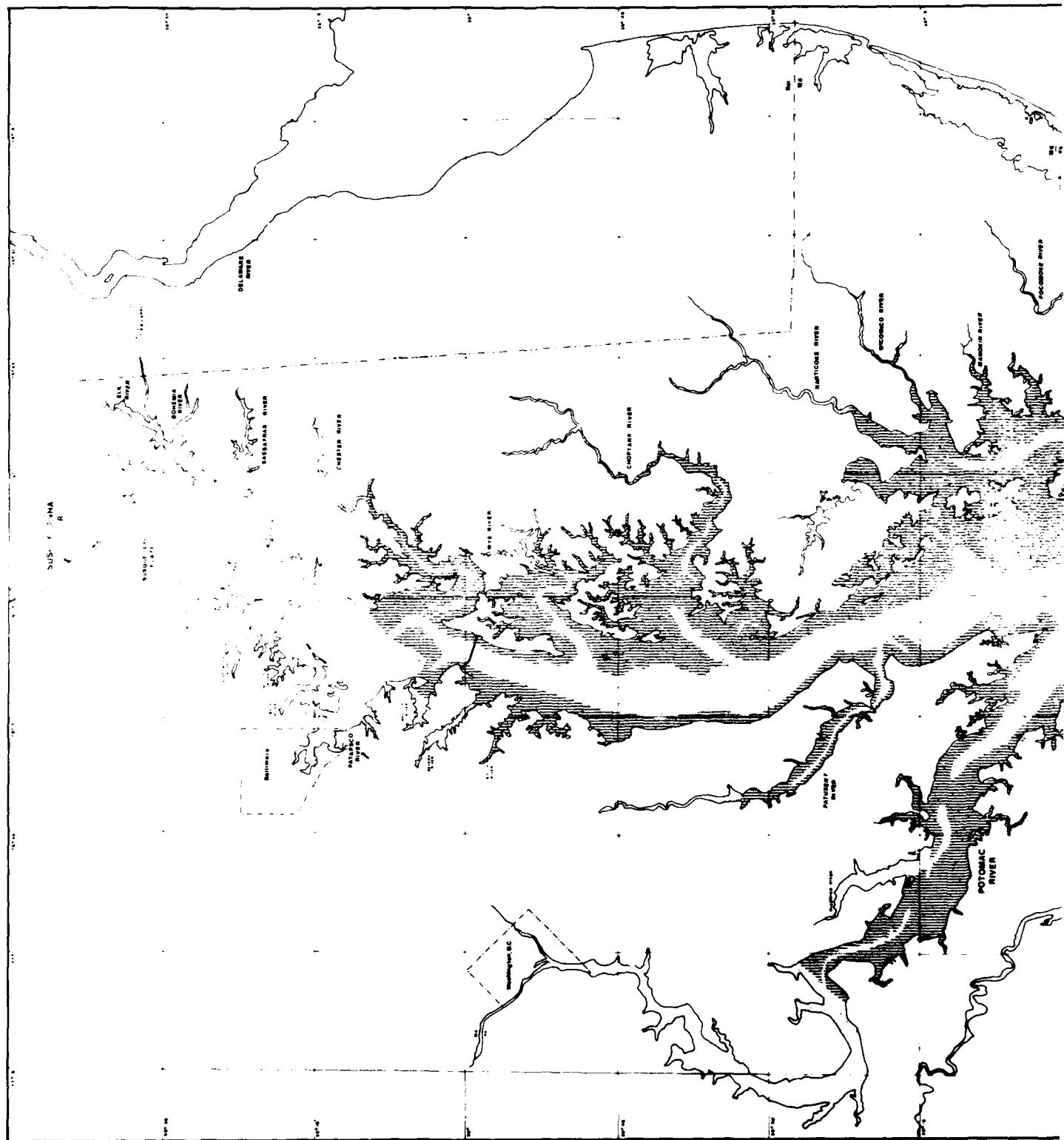
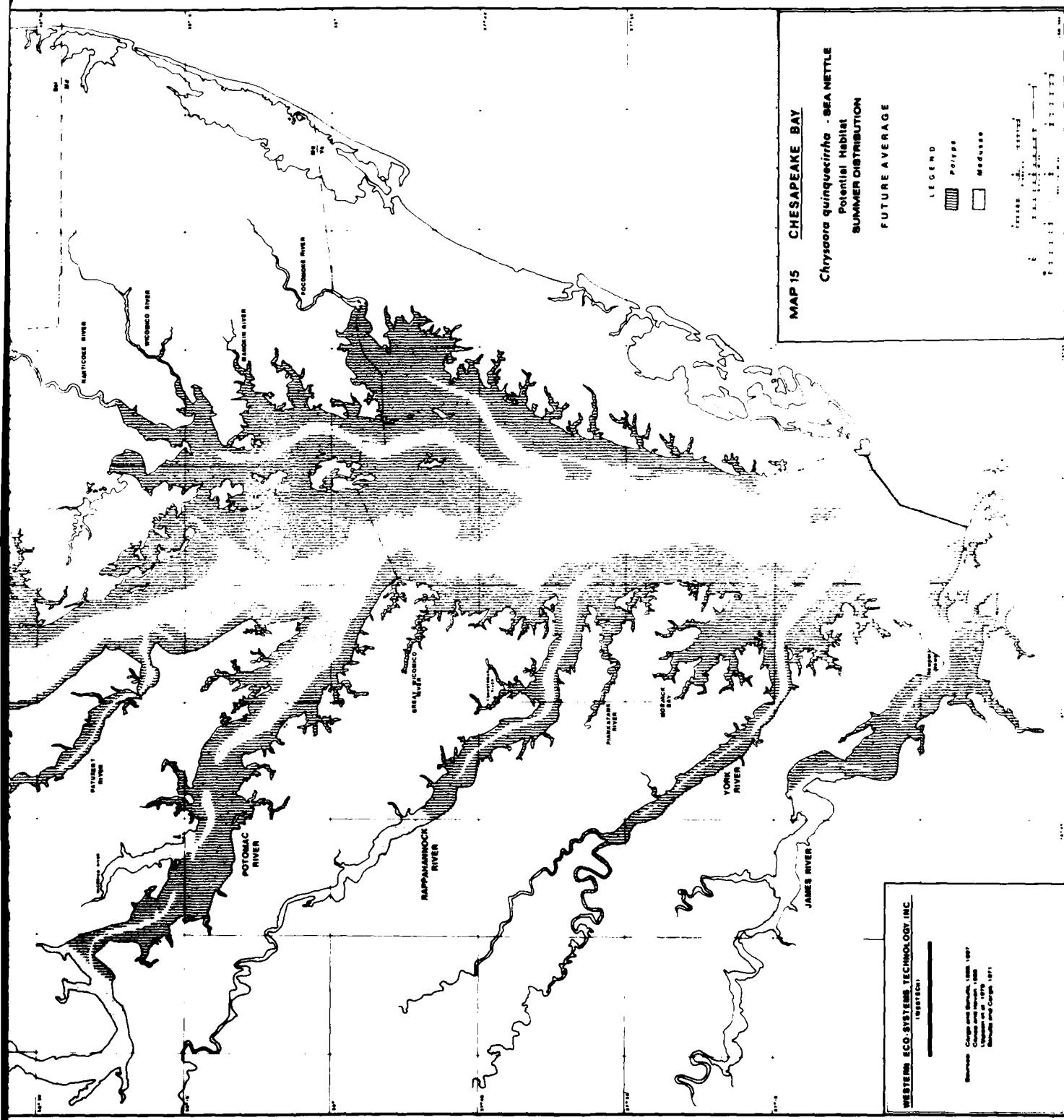


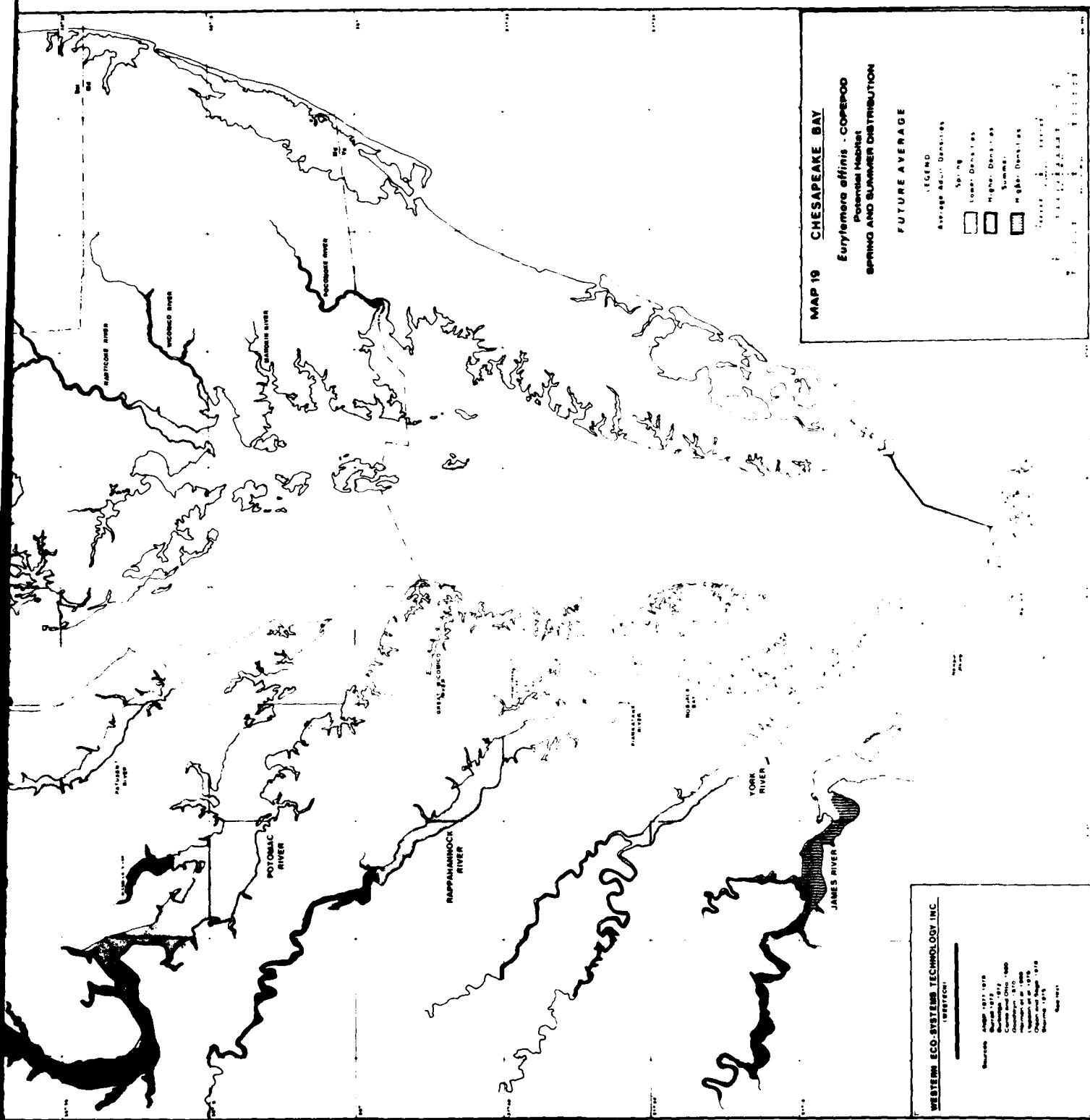
Plate 58

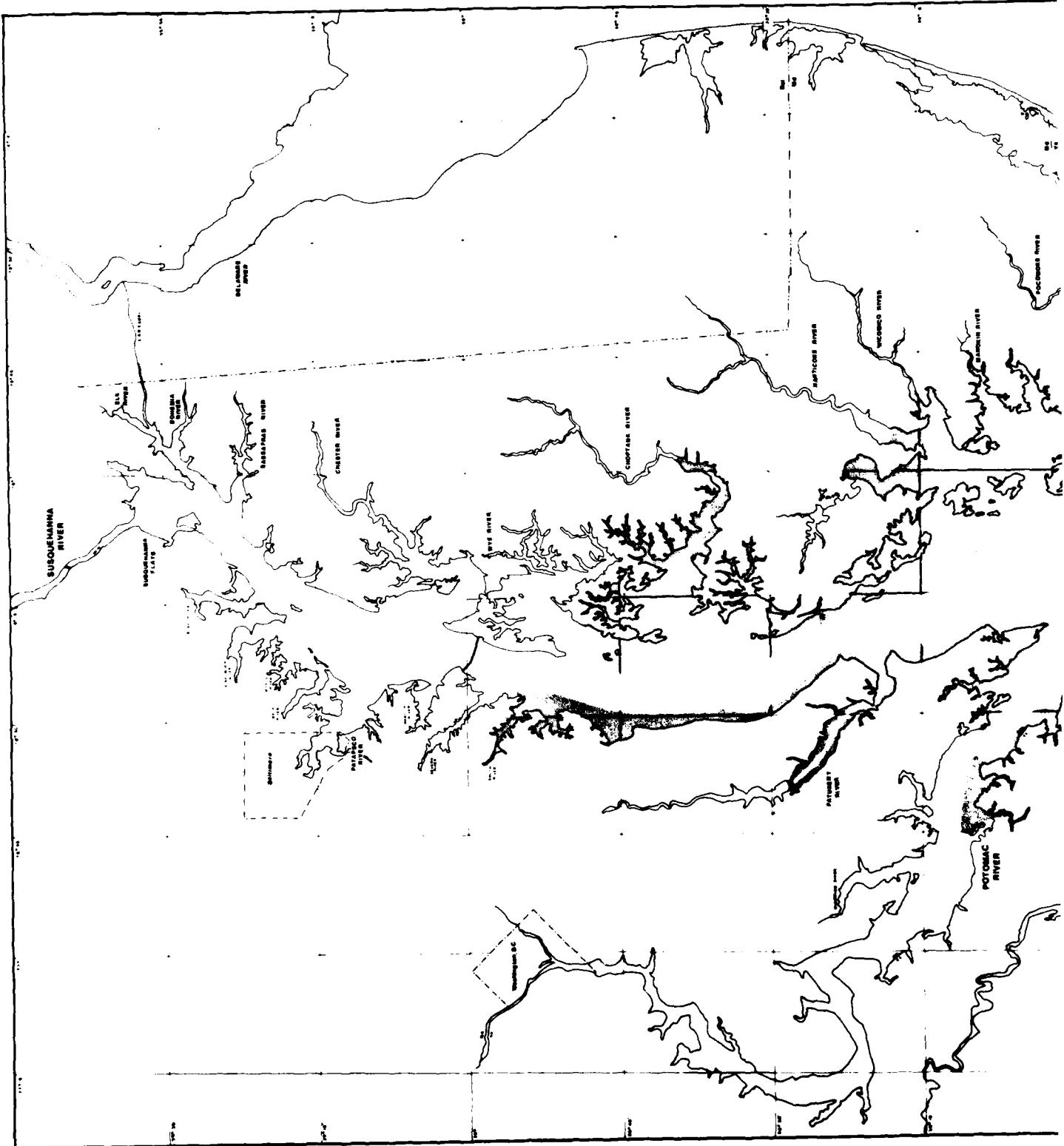


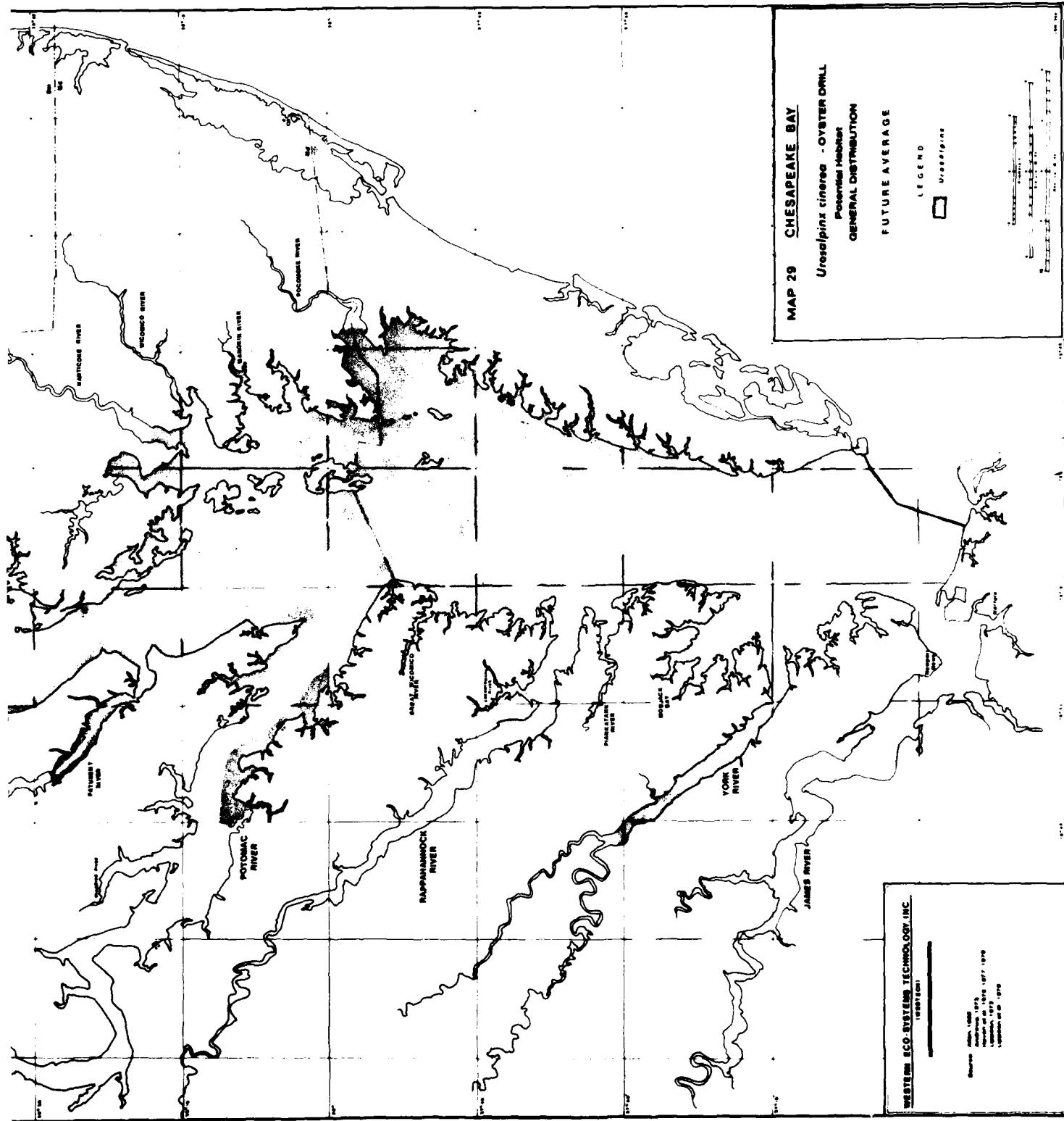


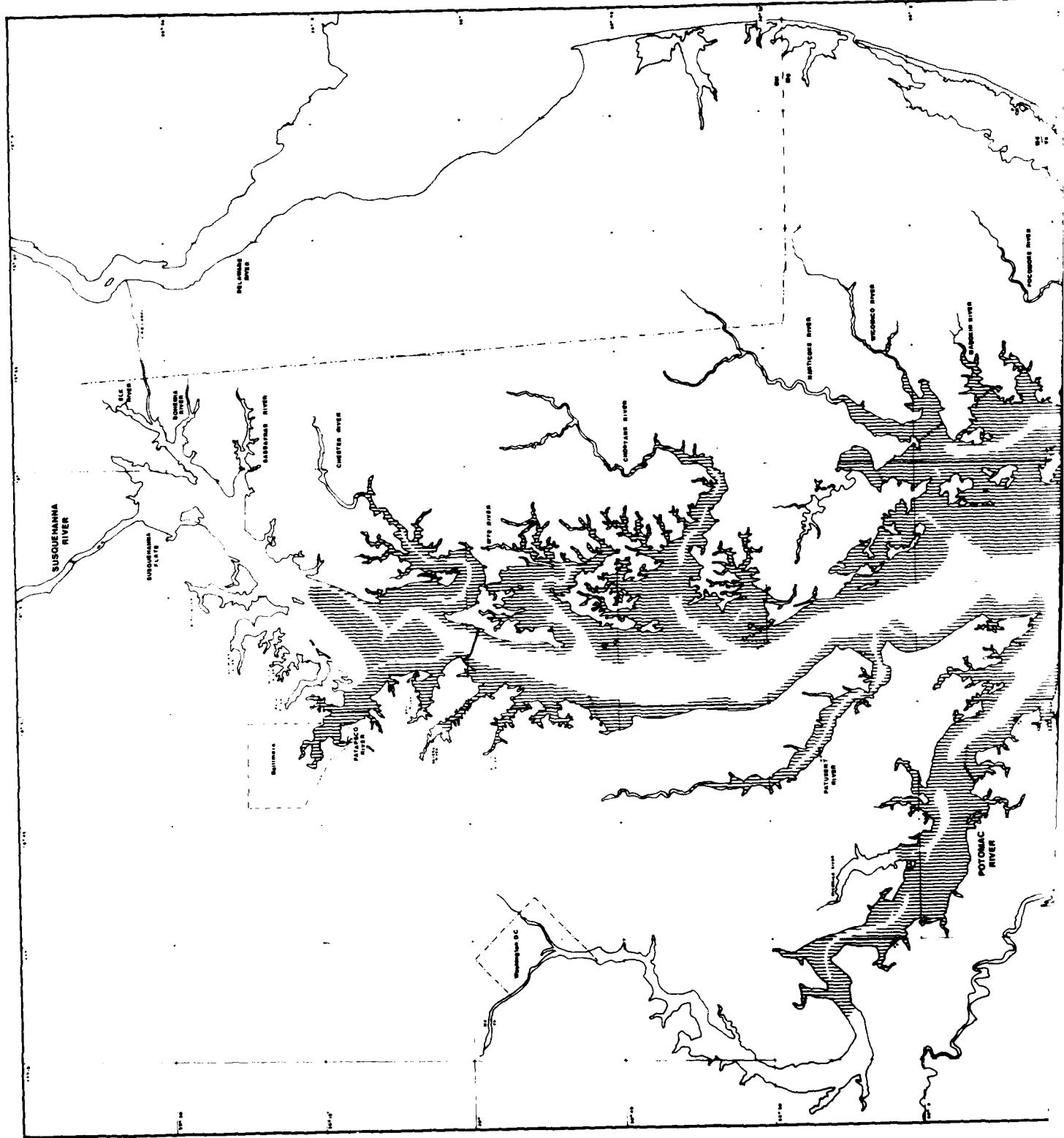


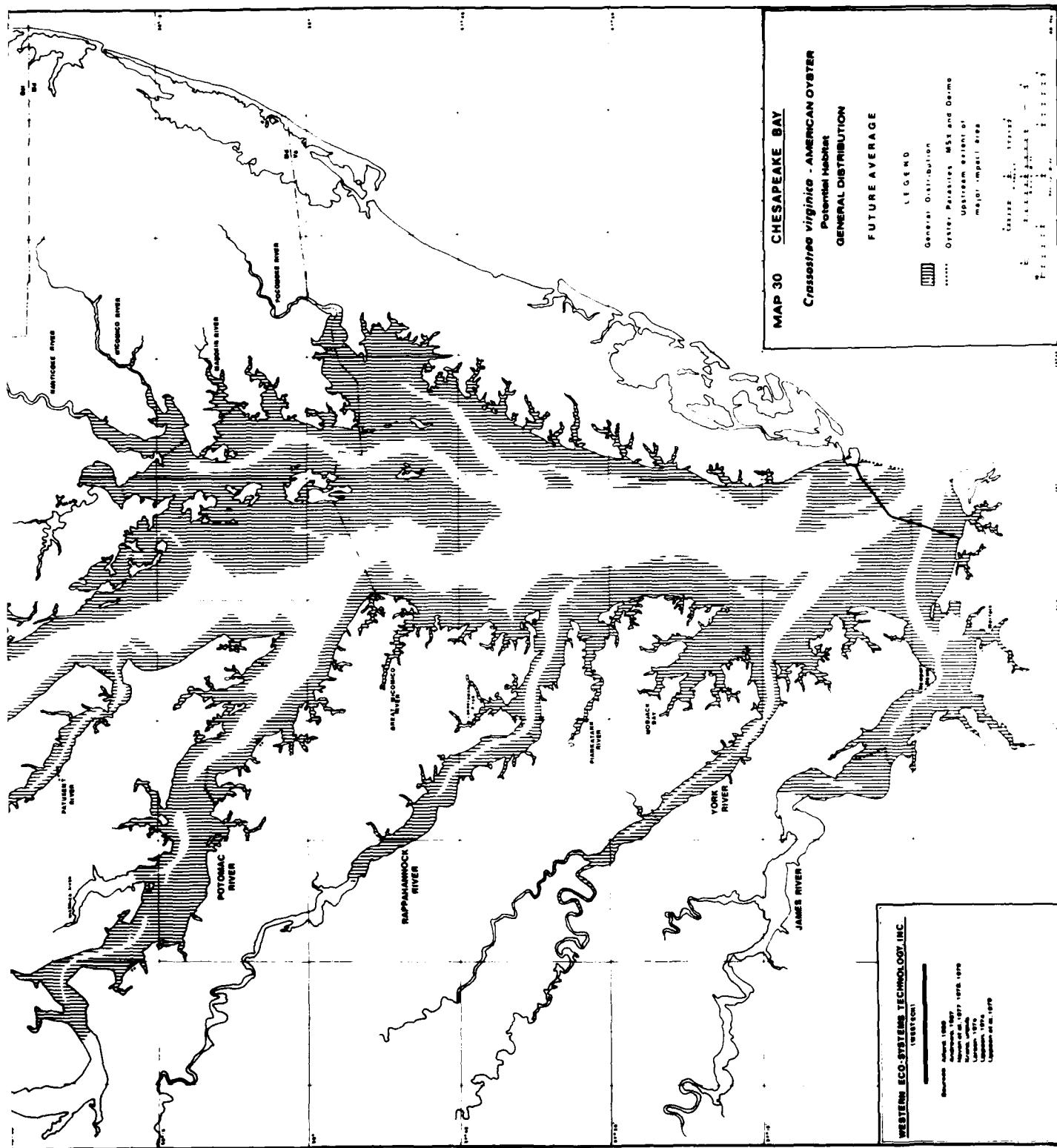


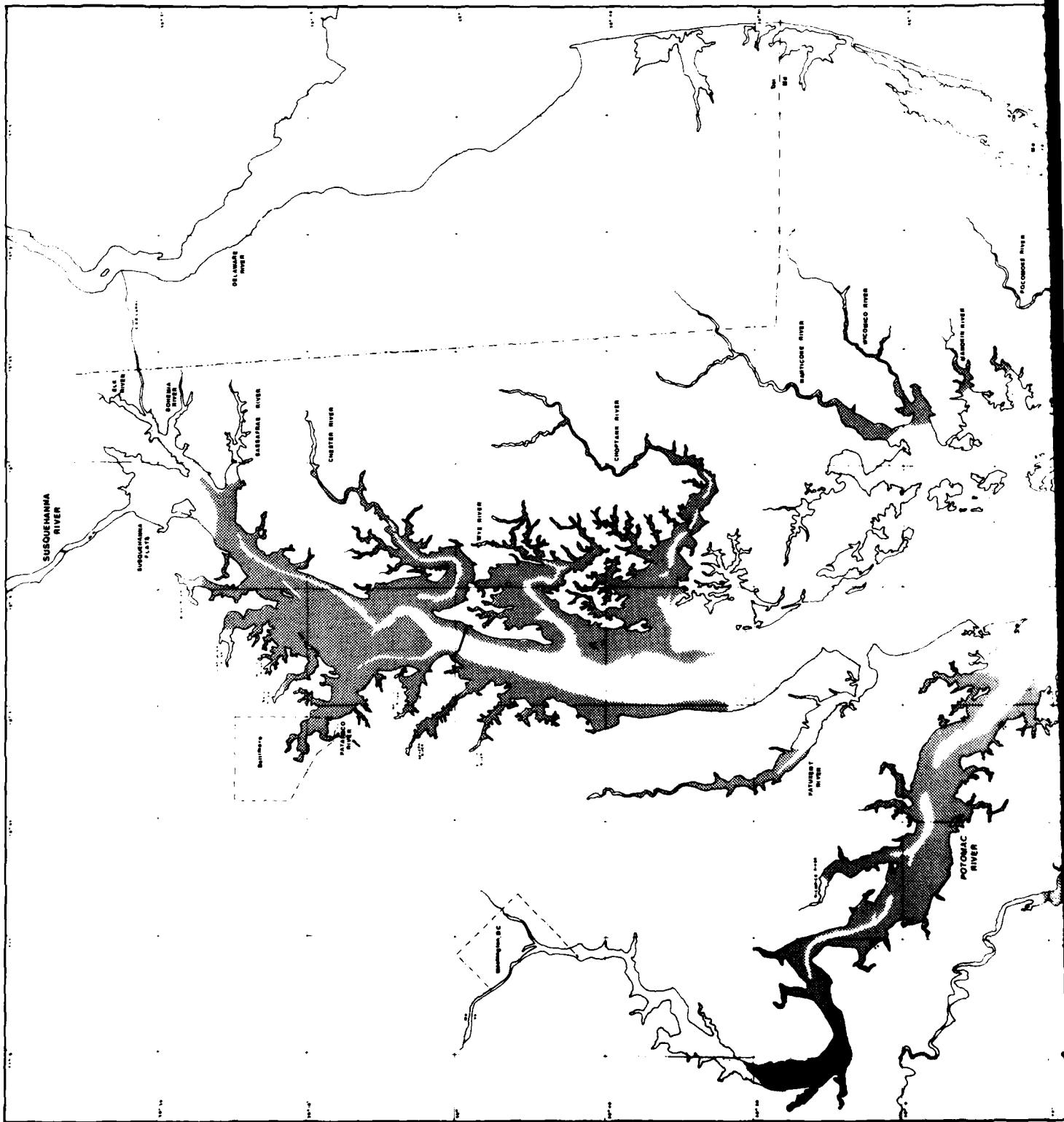


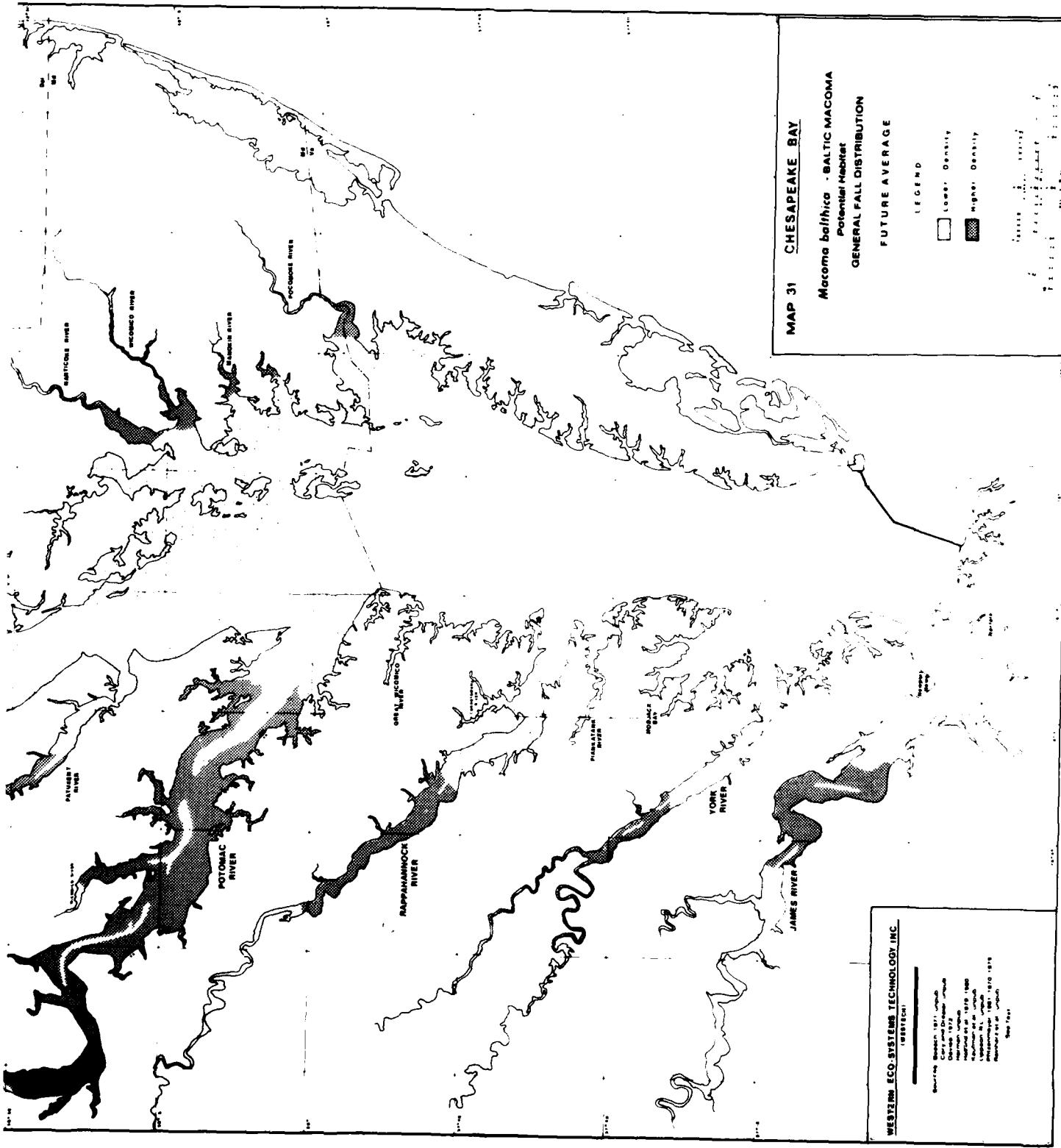


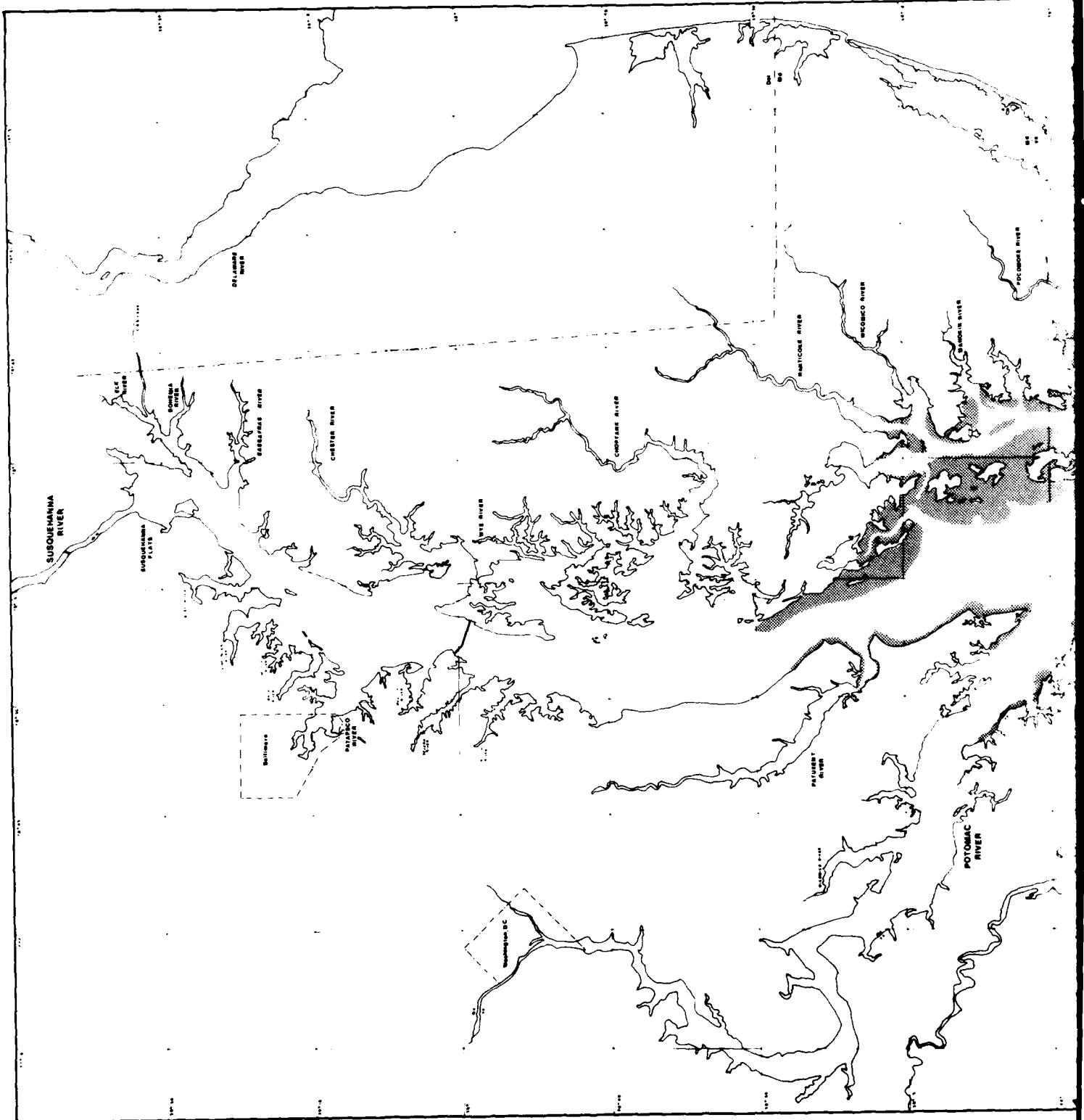


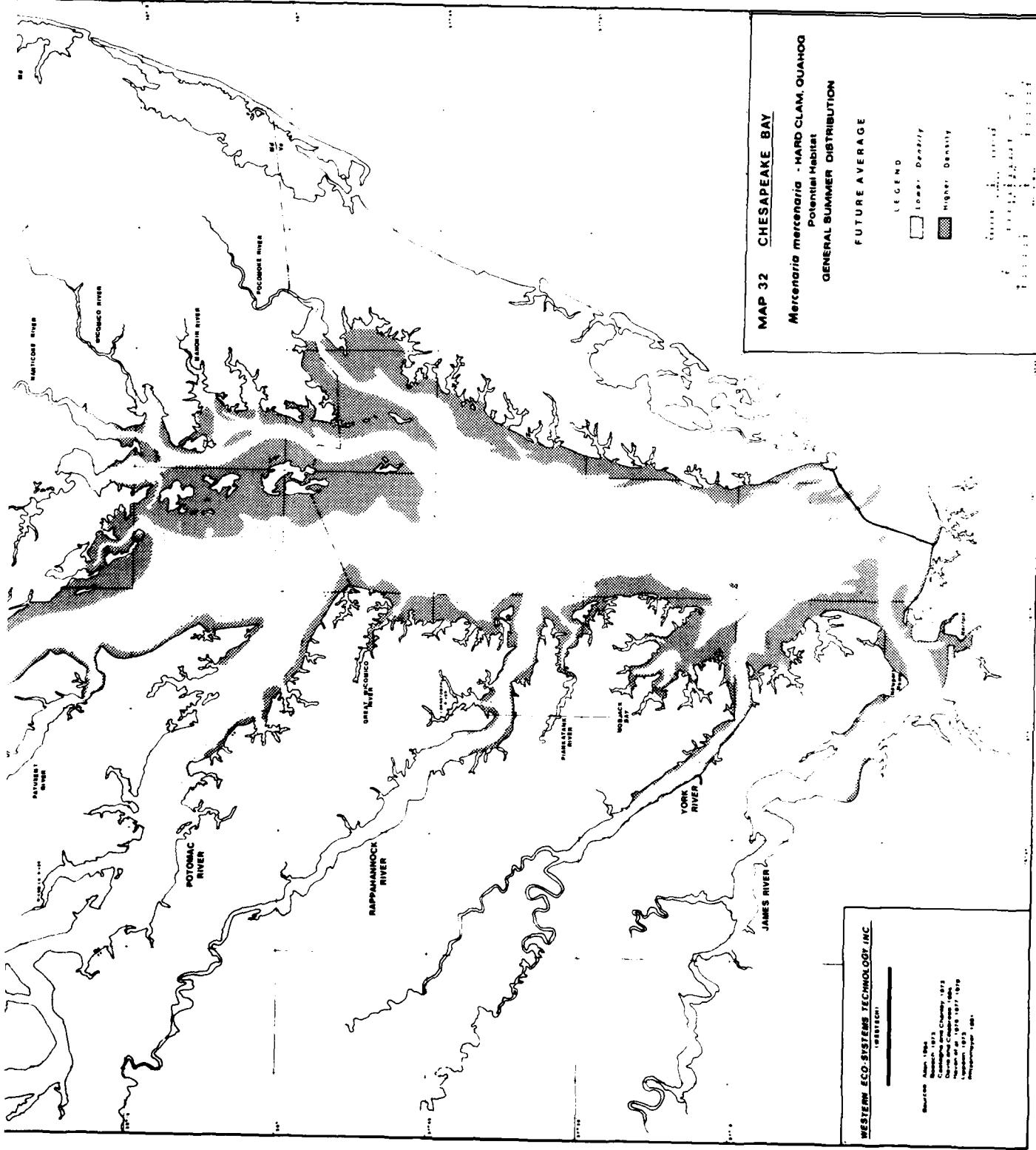


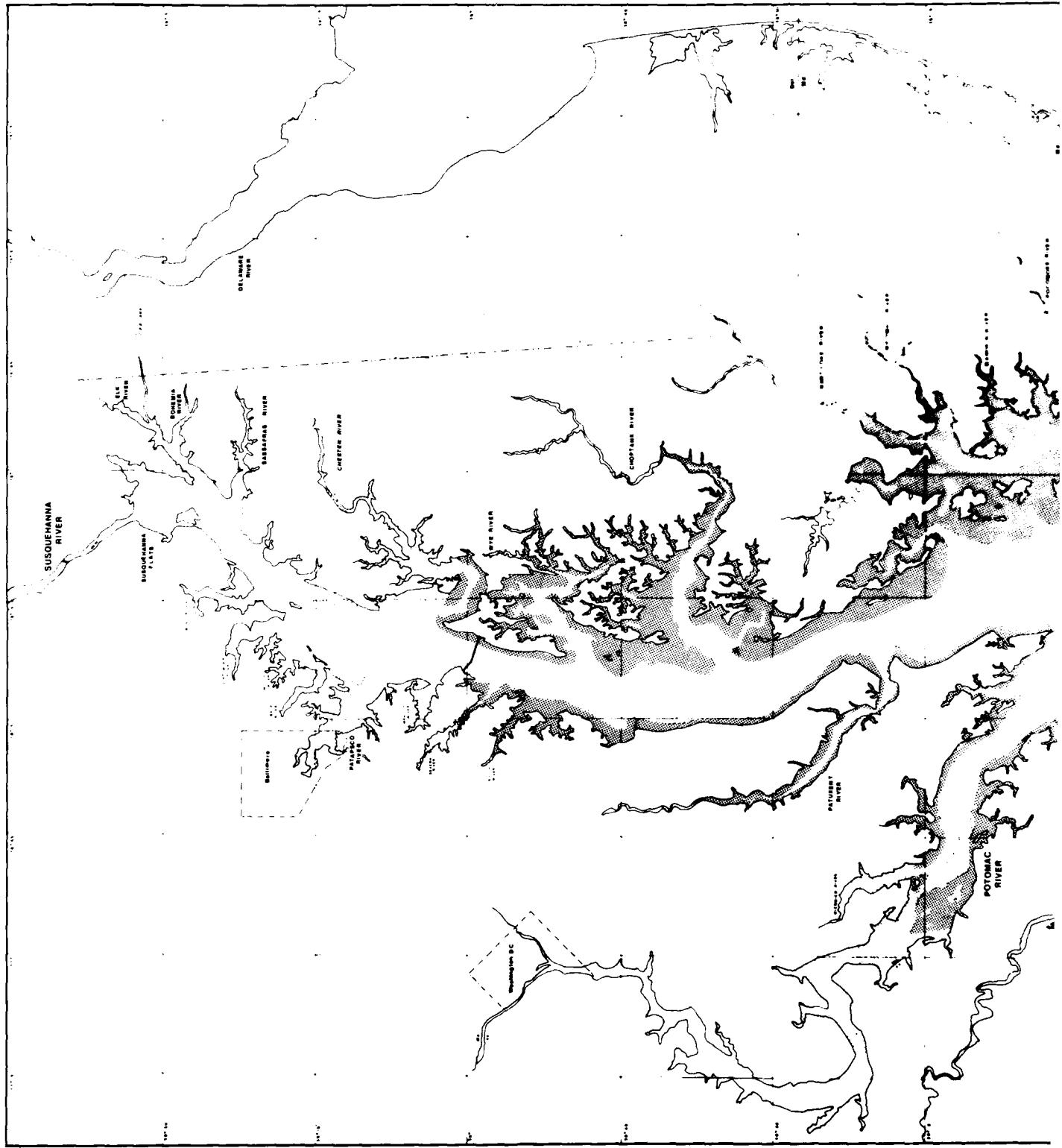


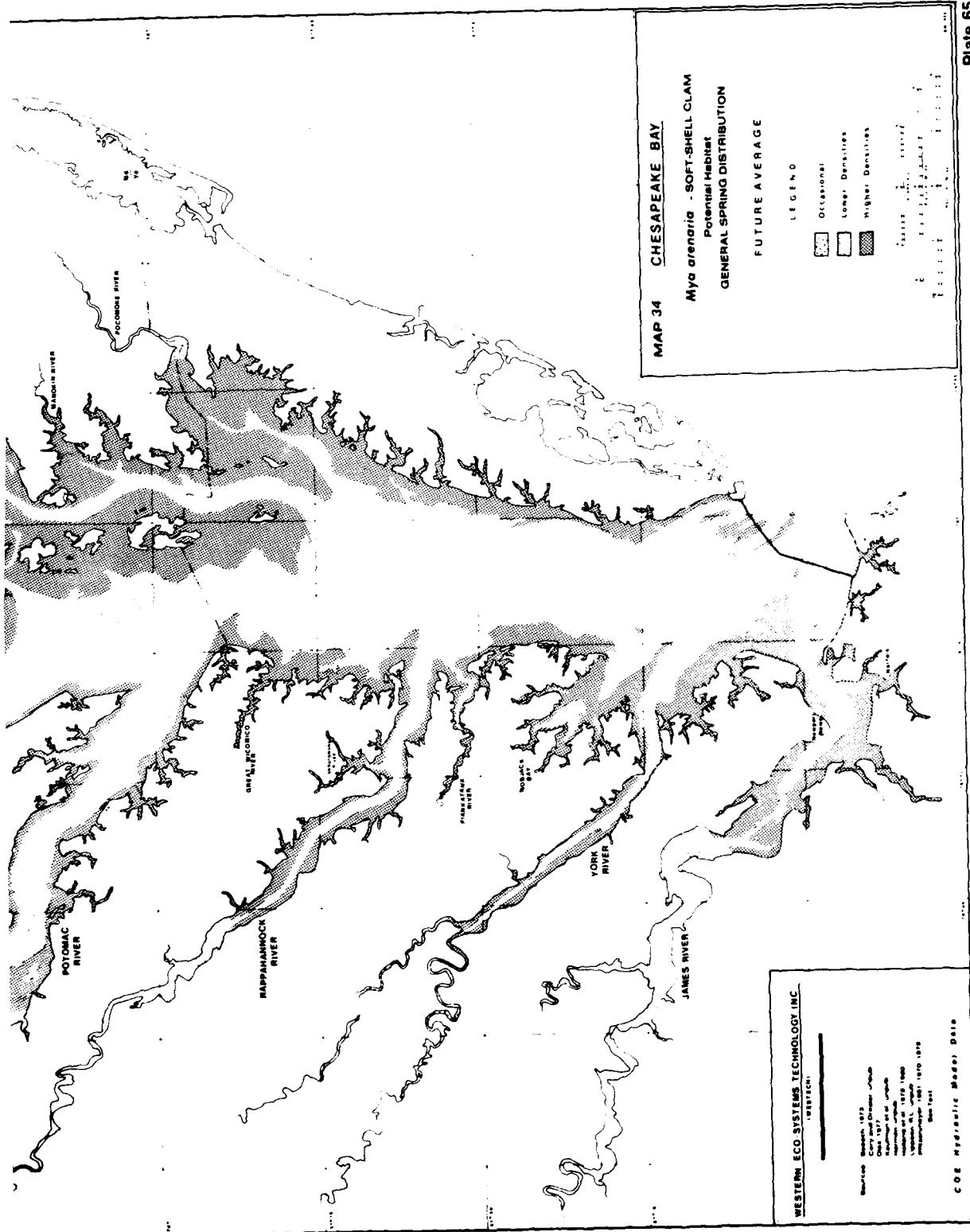




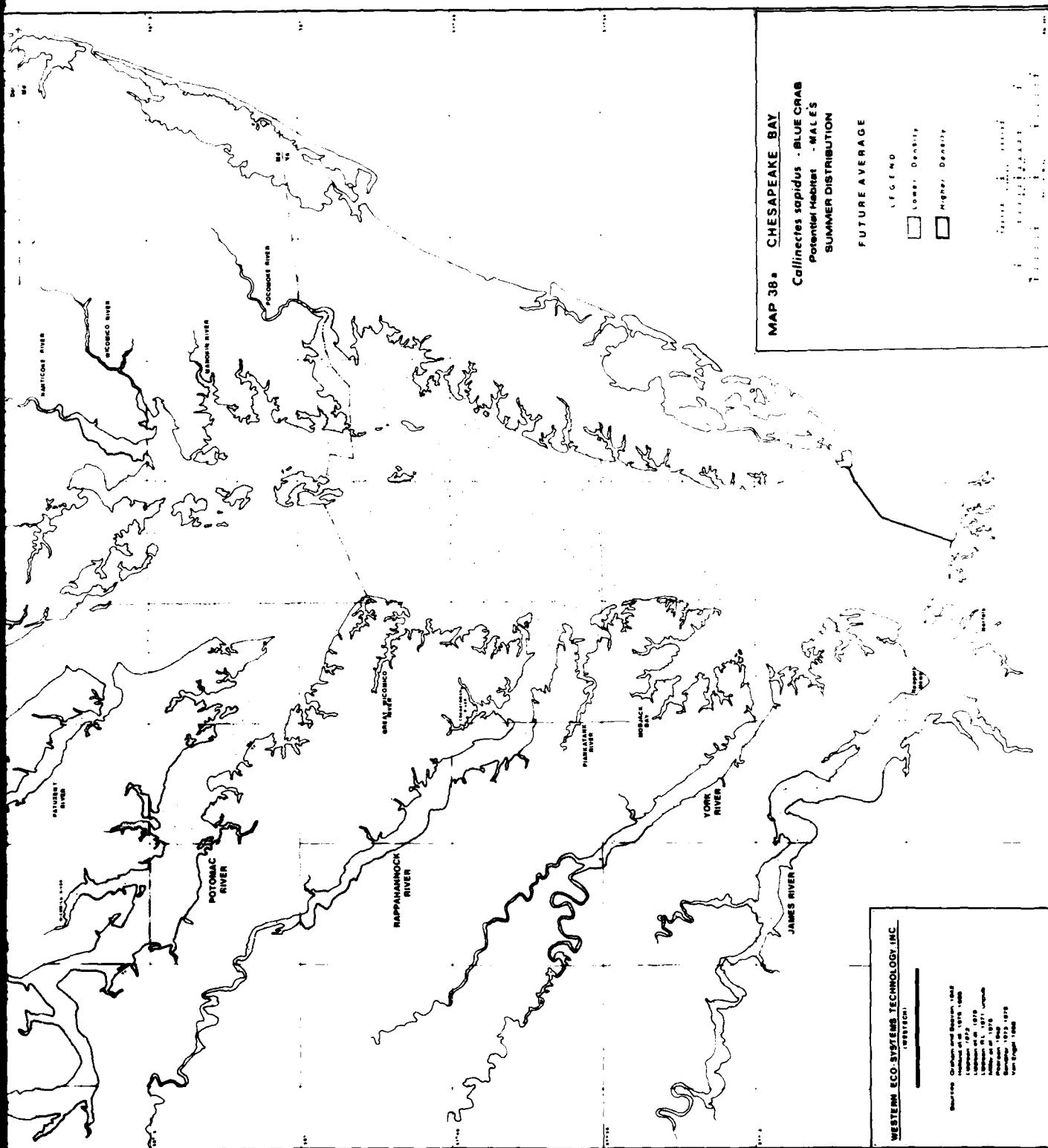


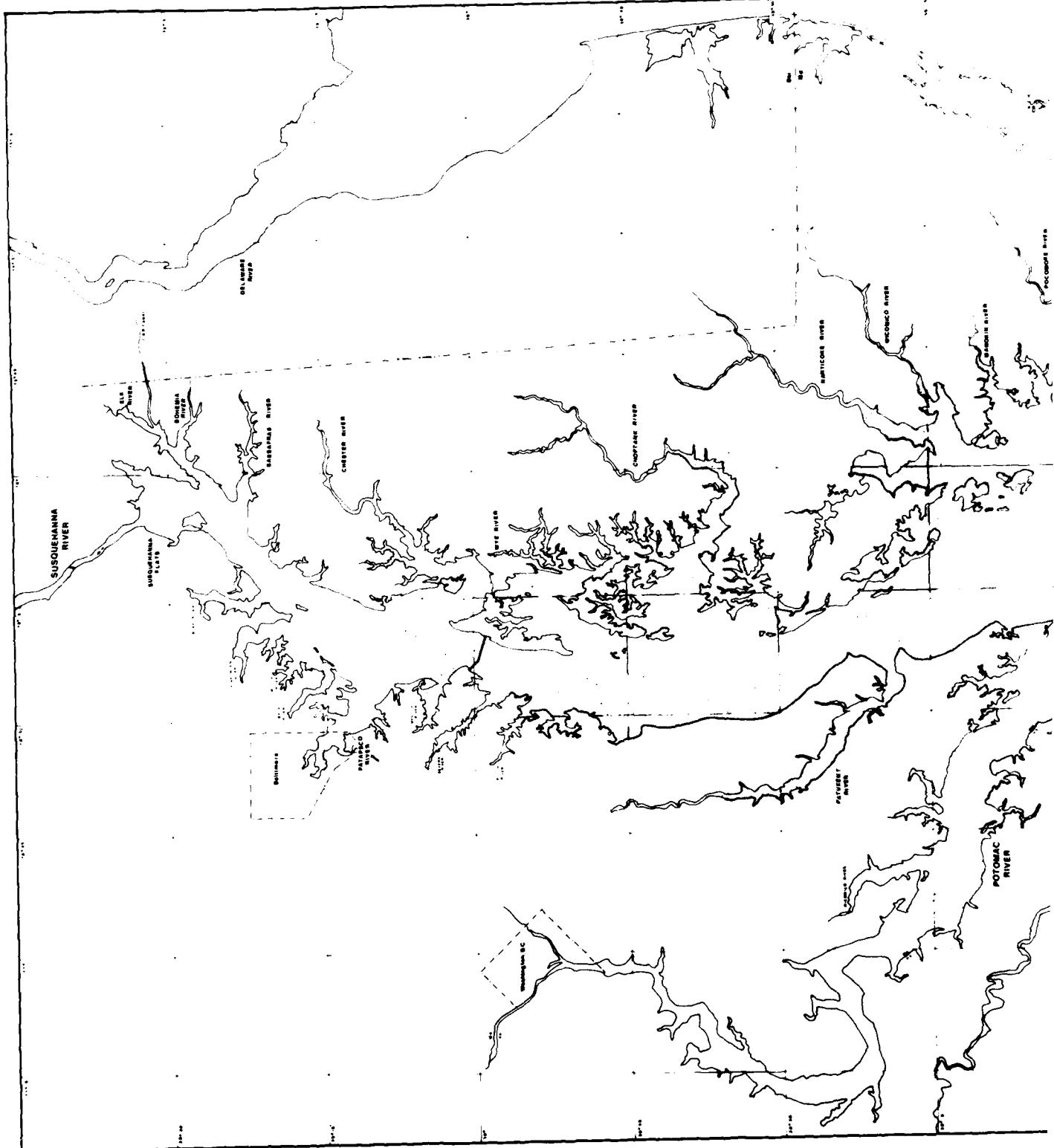


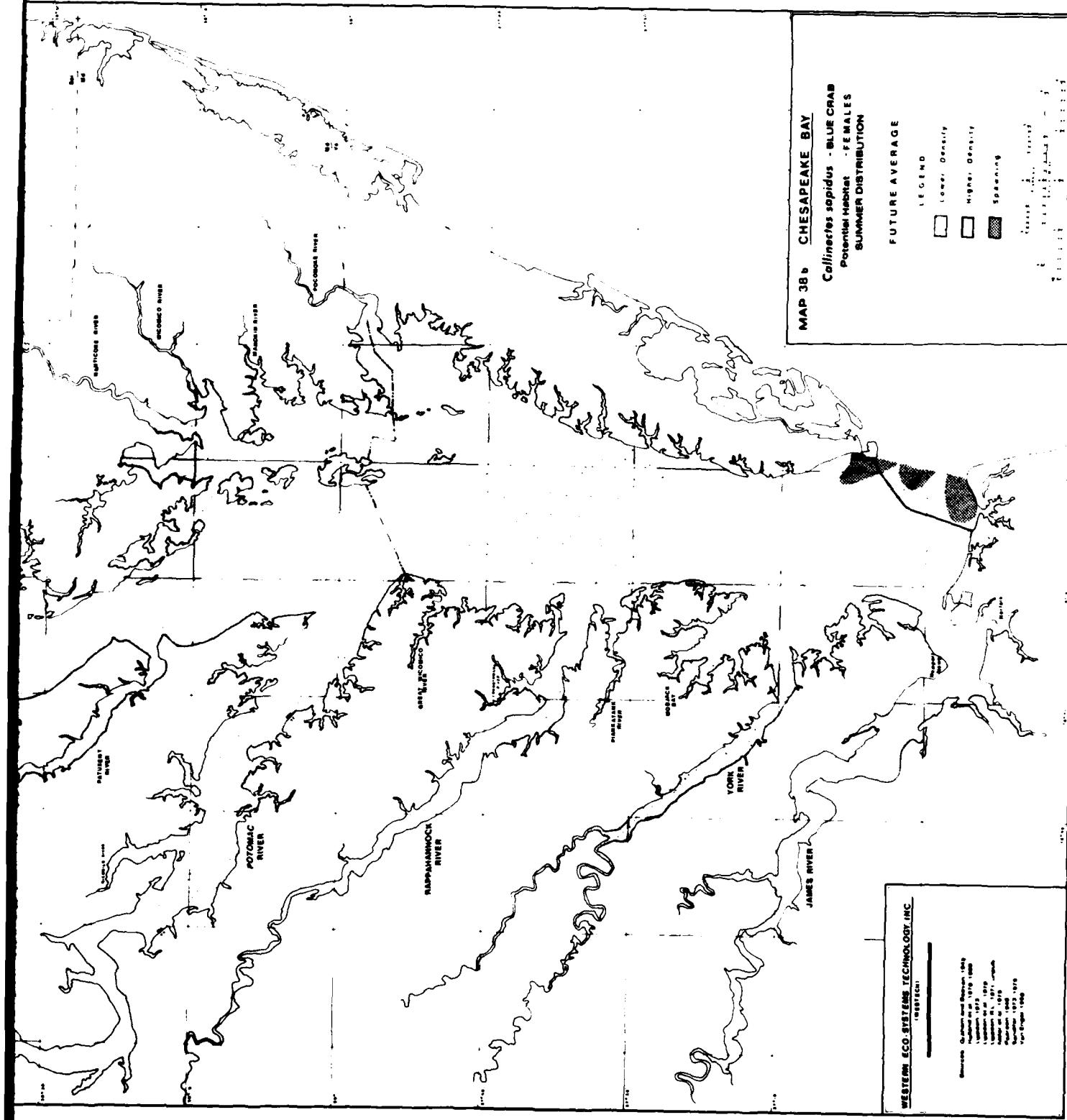


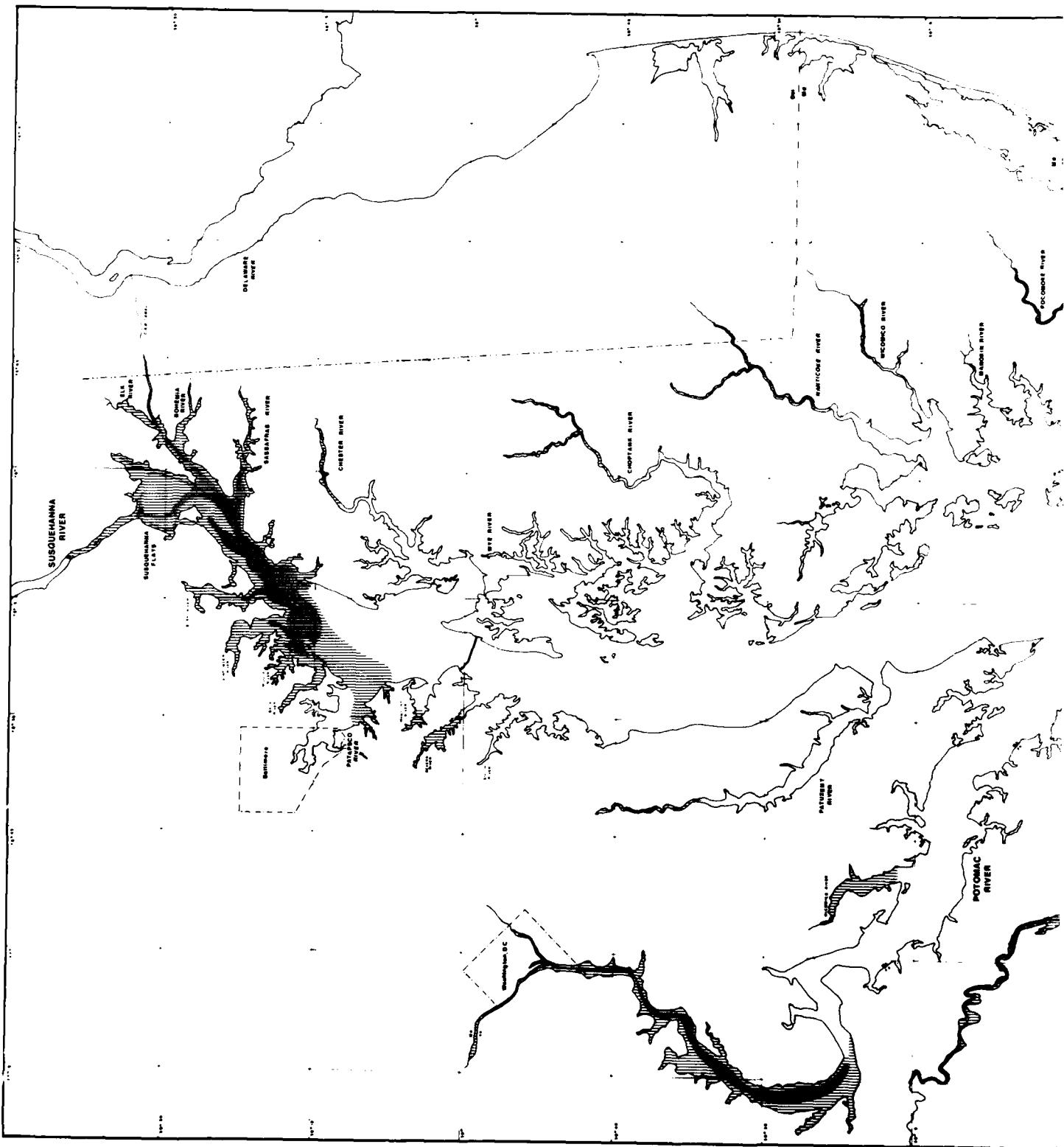












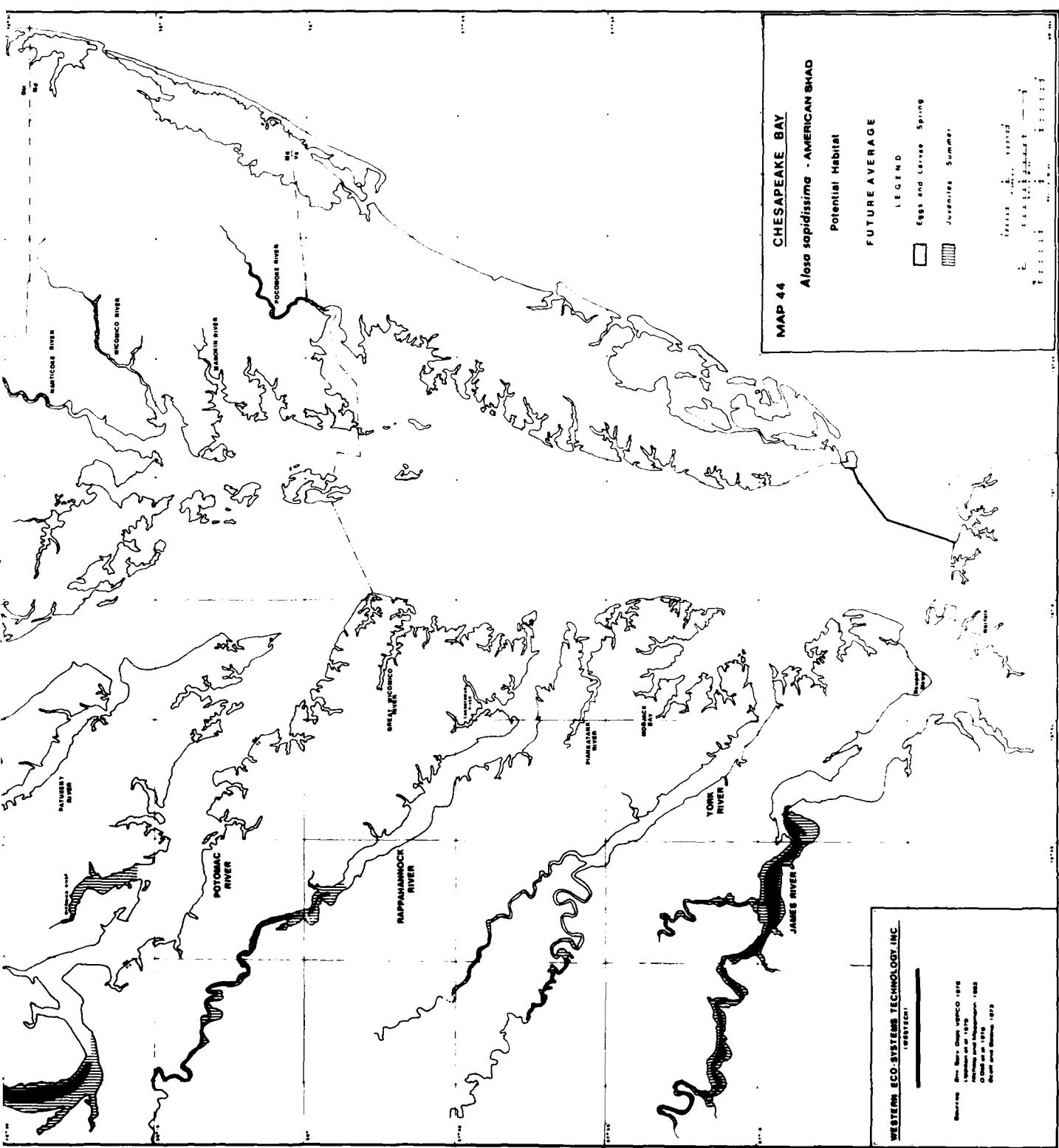
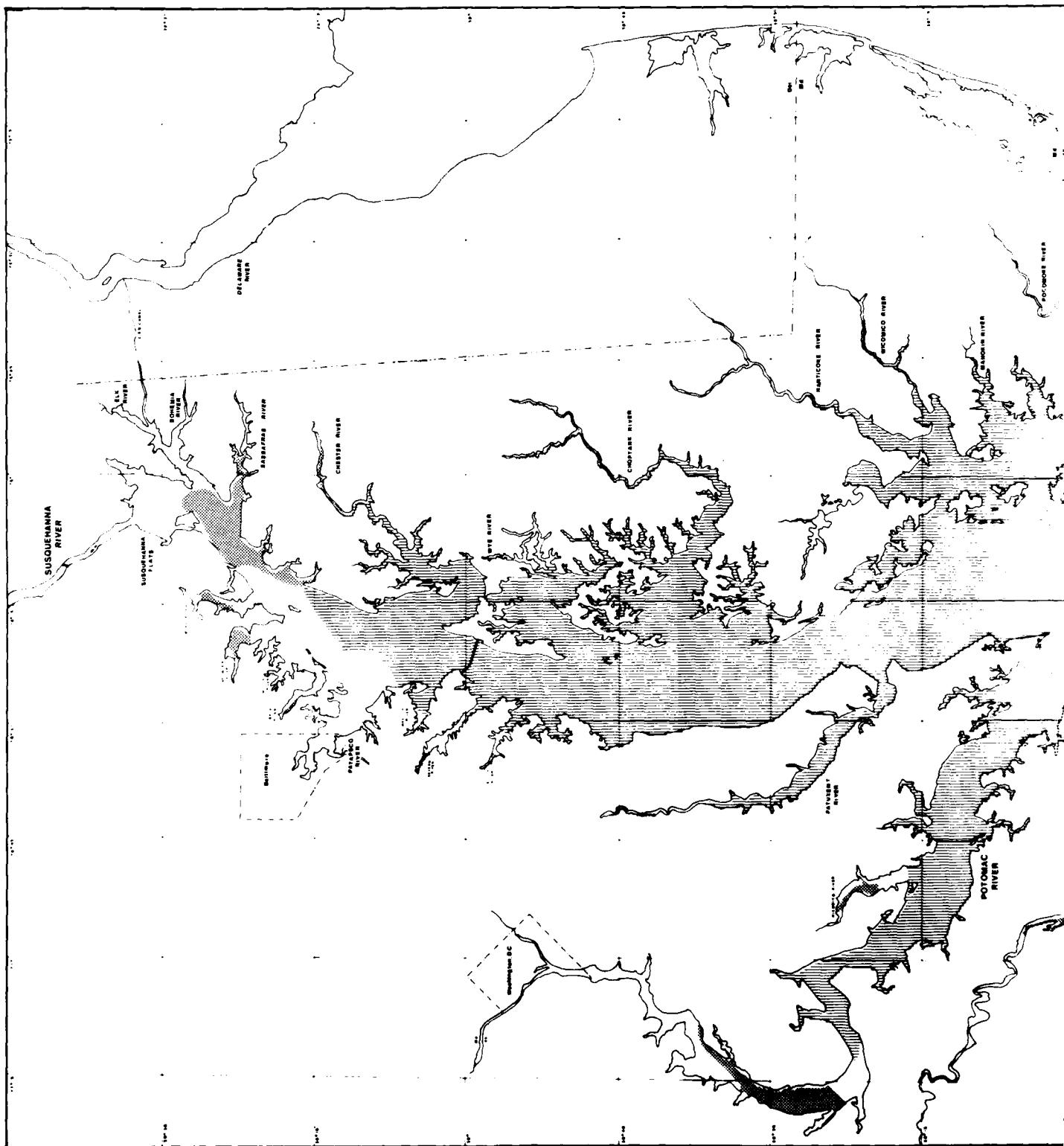
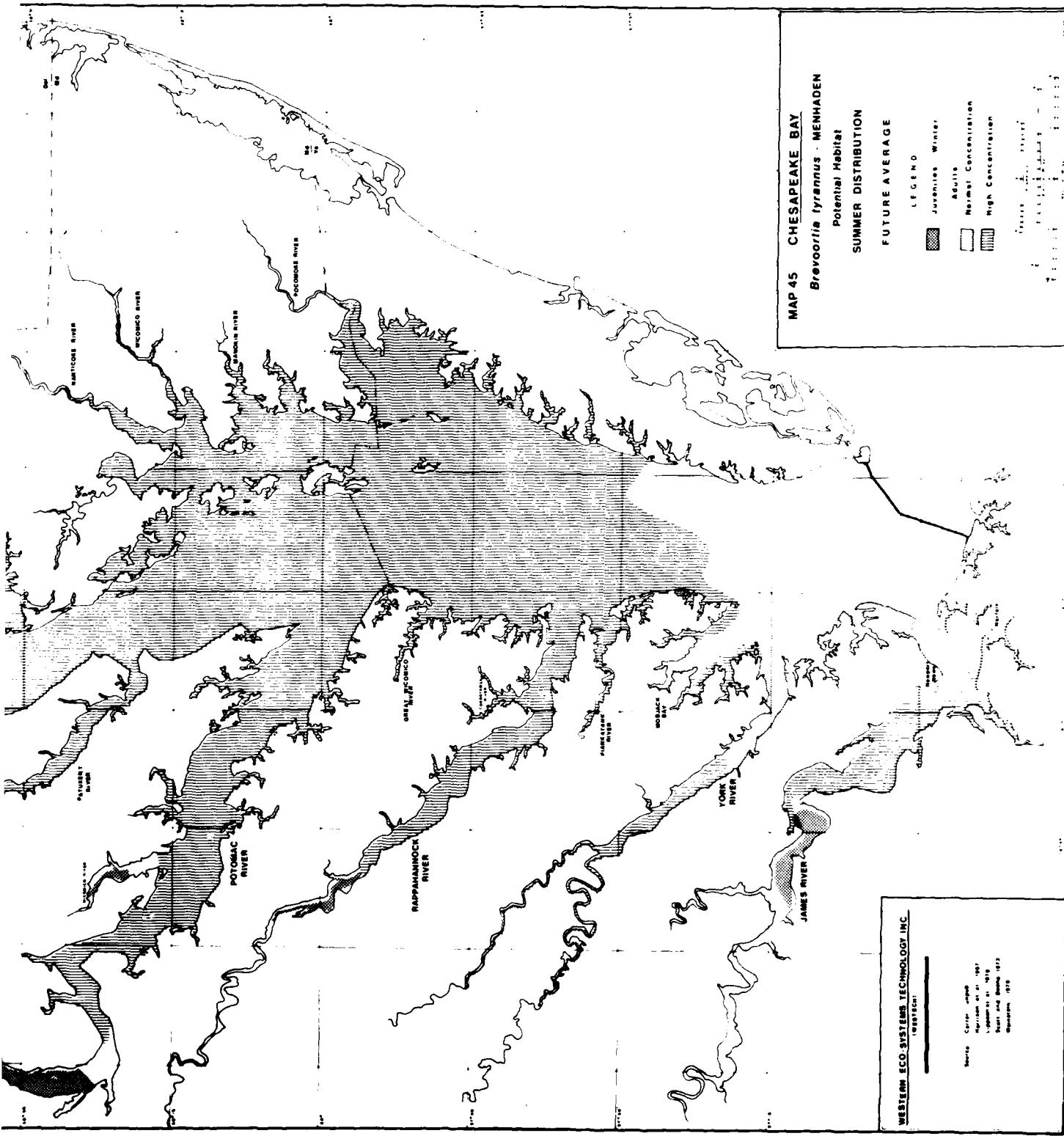
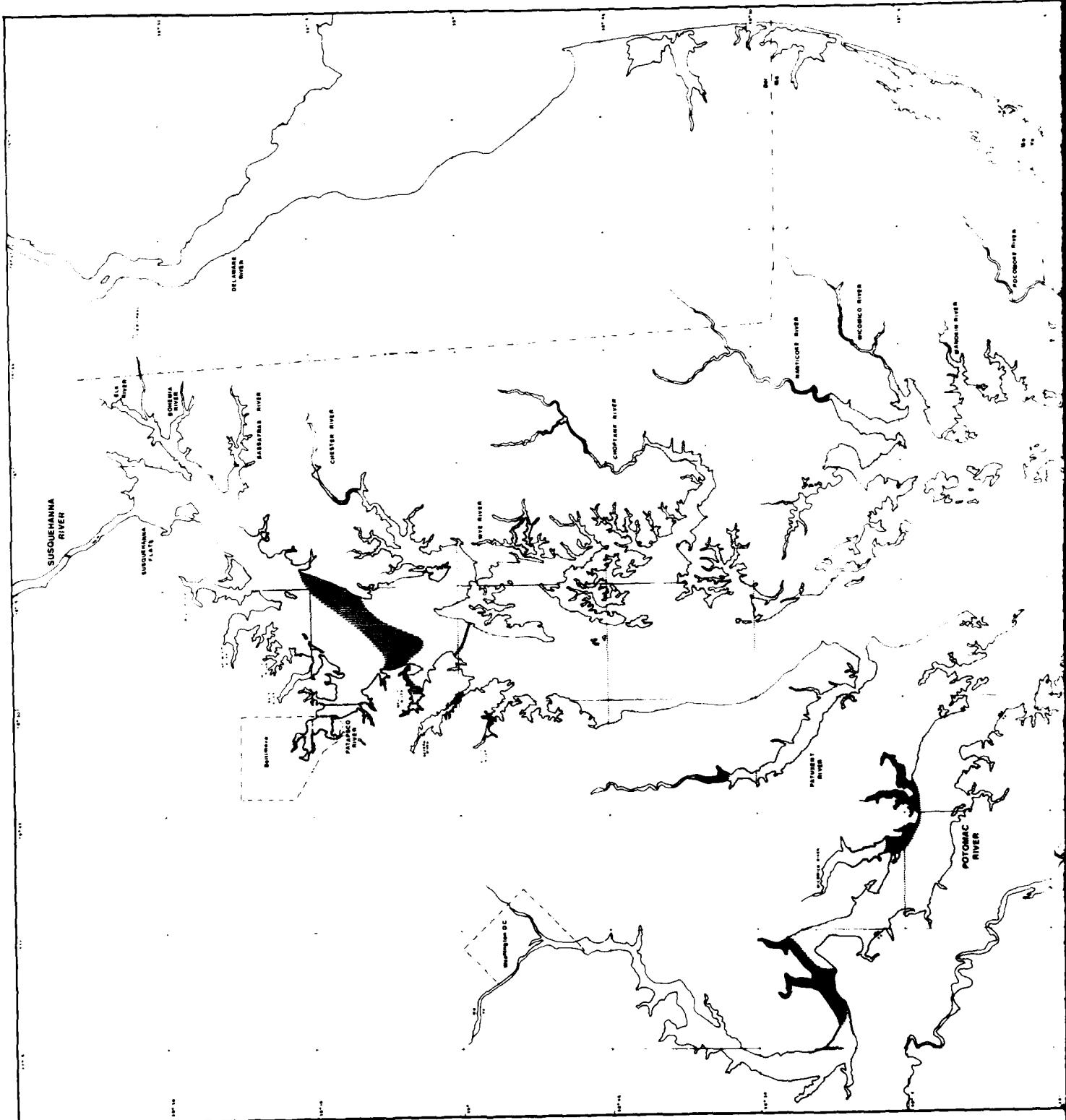


Plate 68







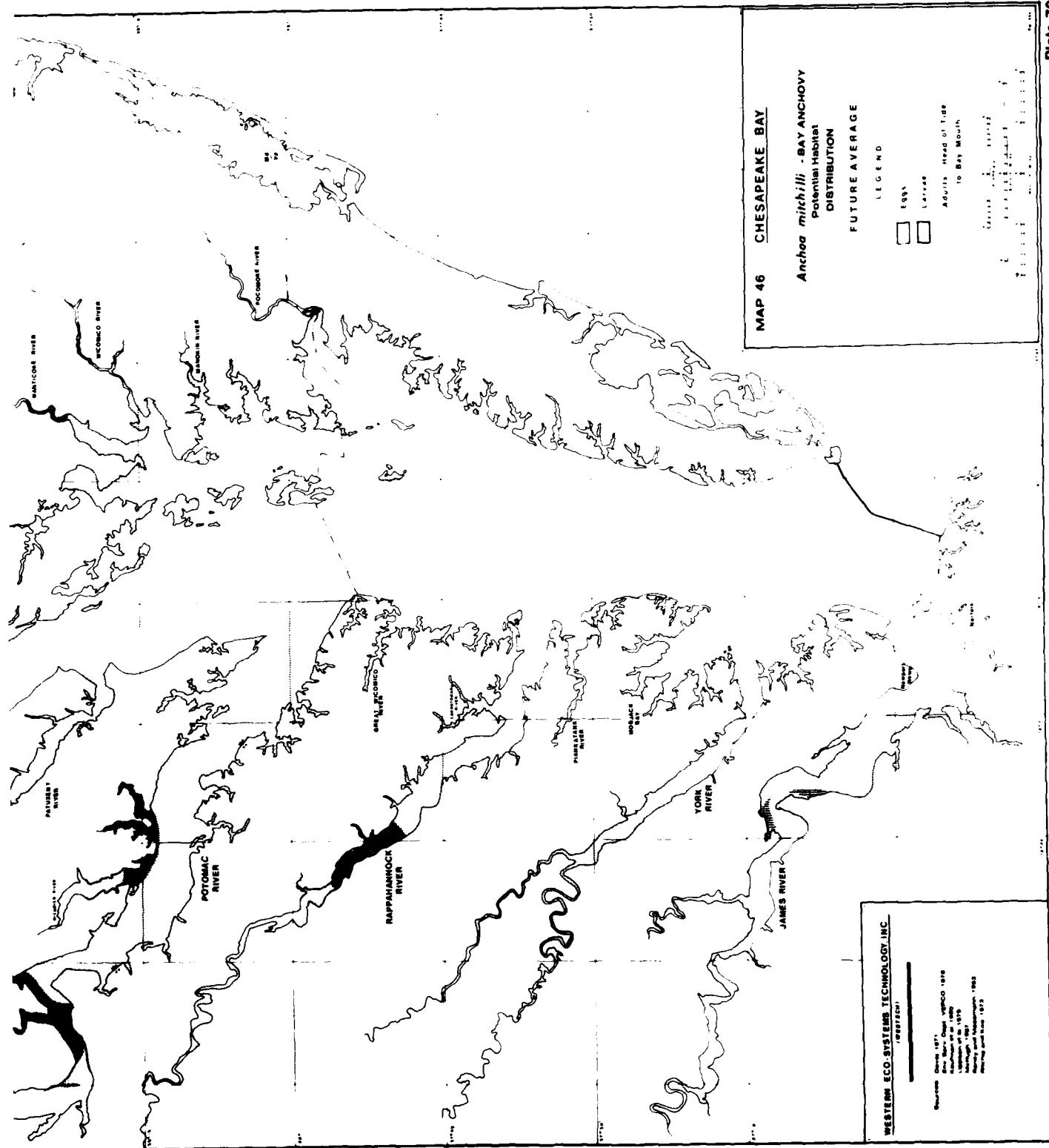
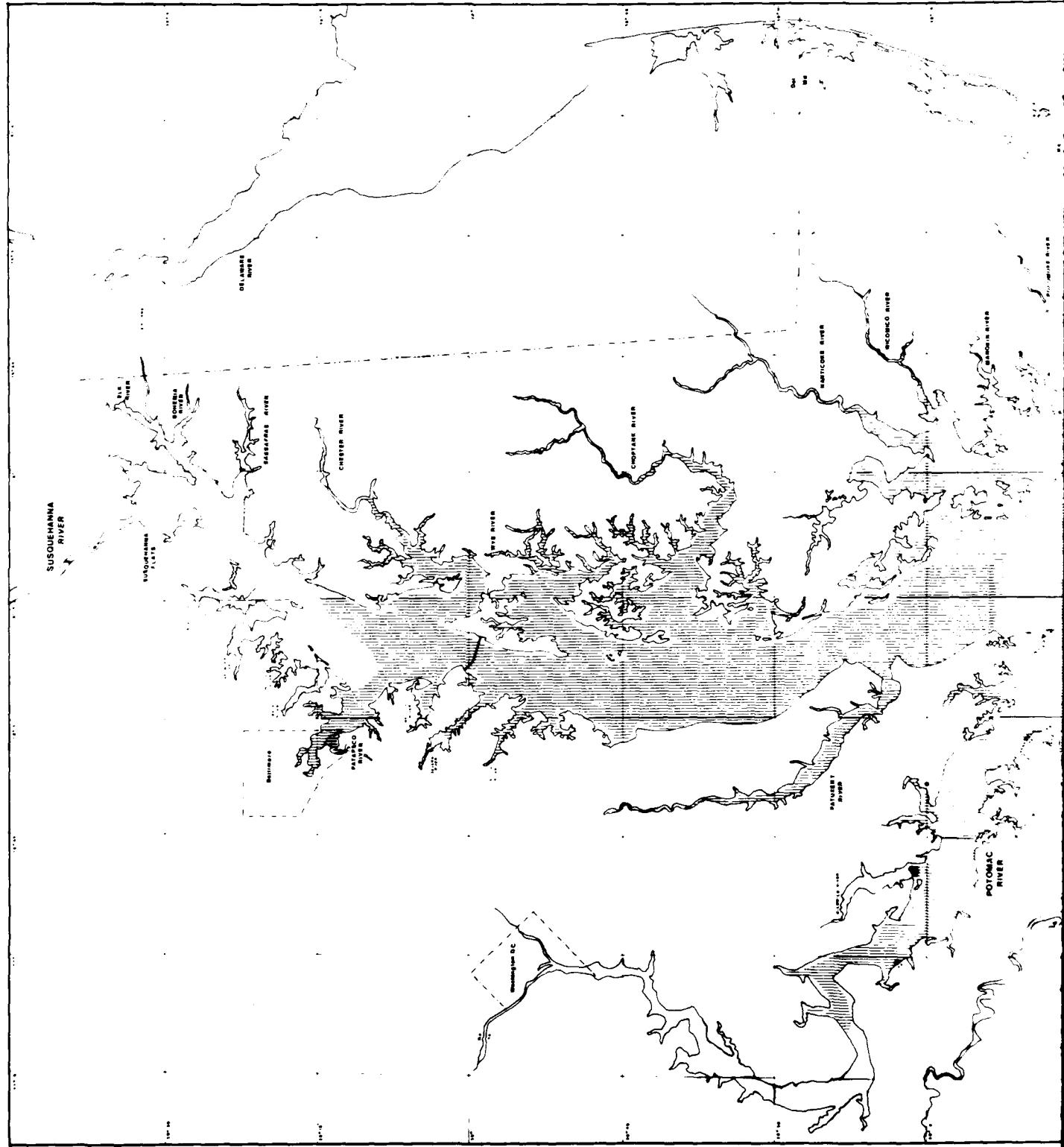
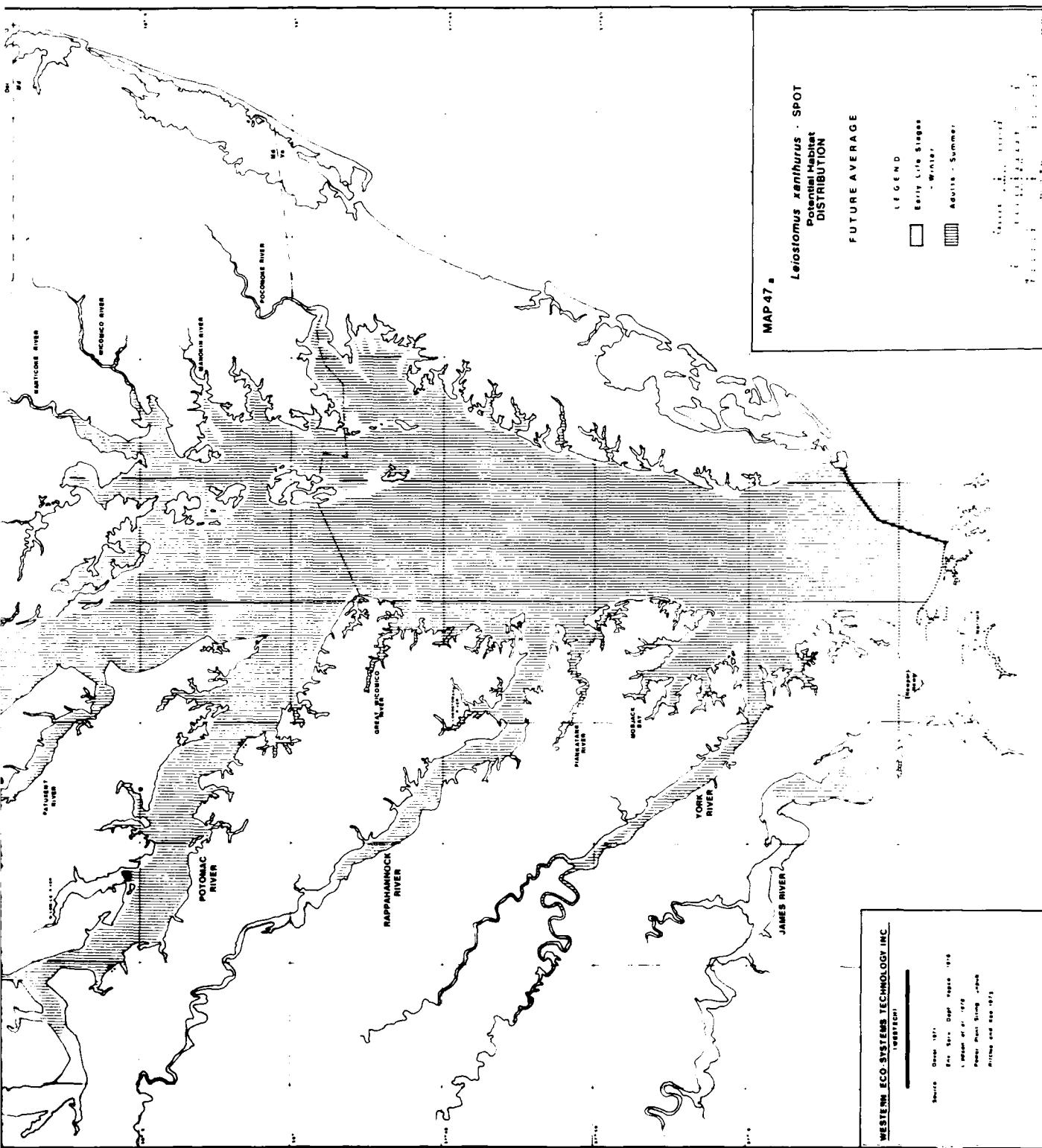


Plate 70







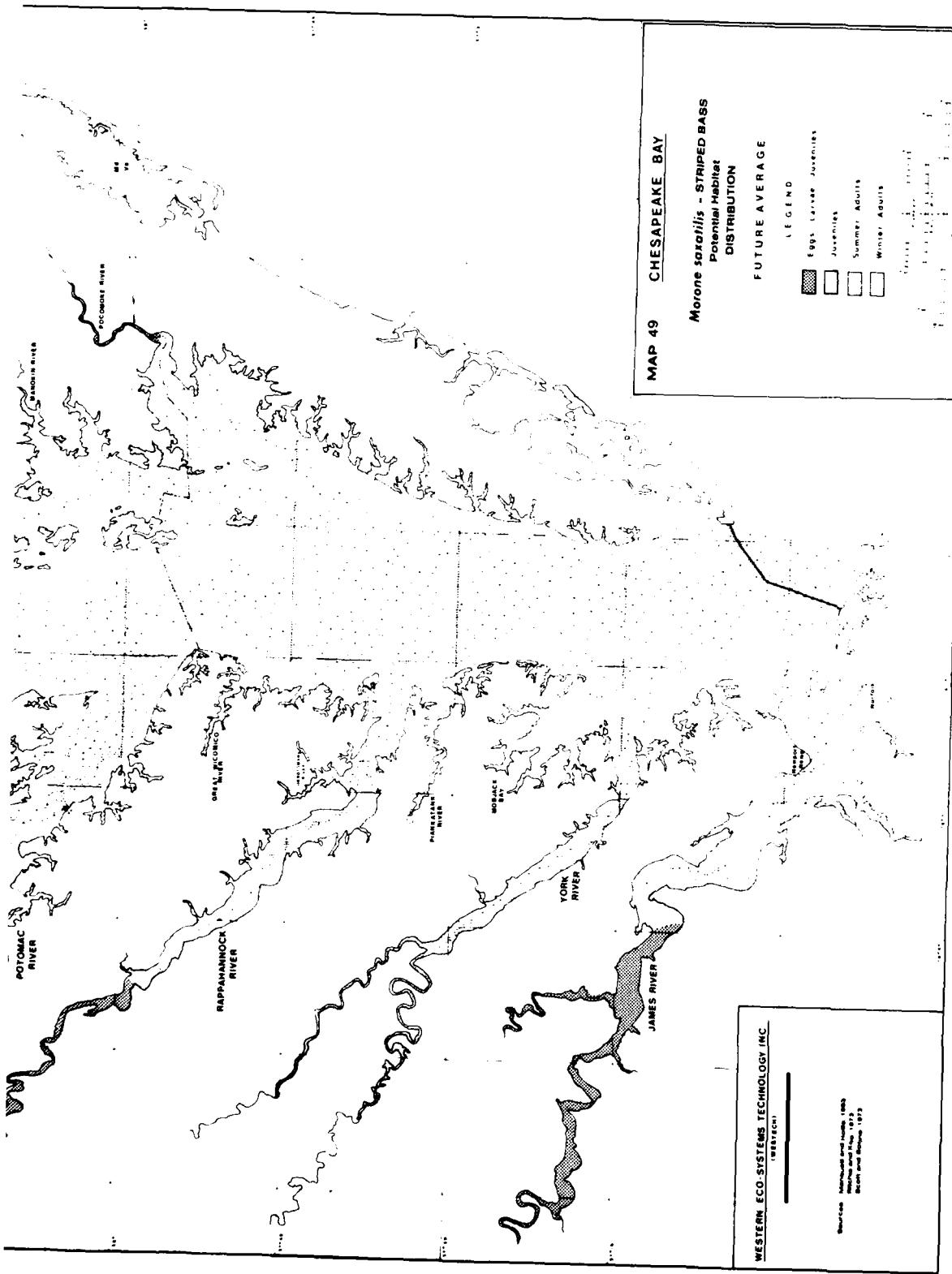
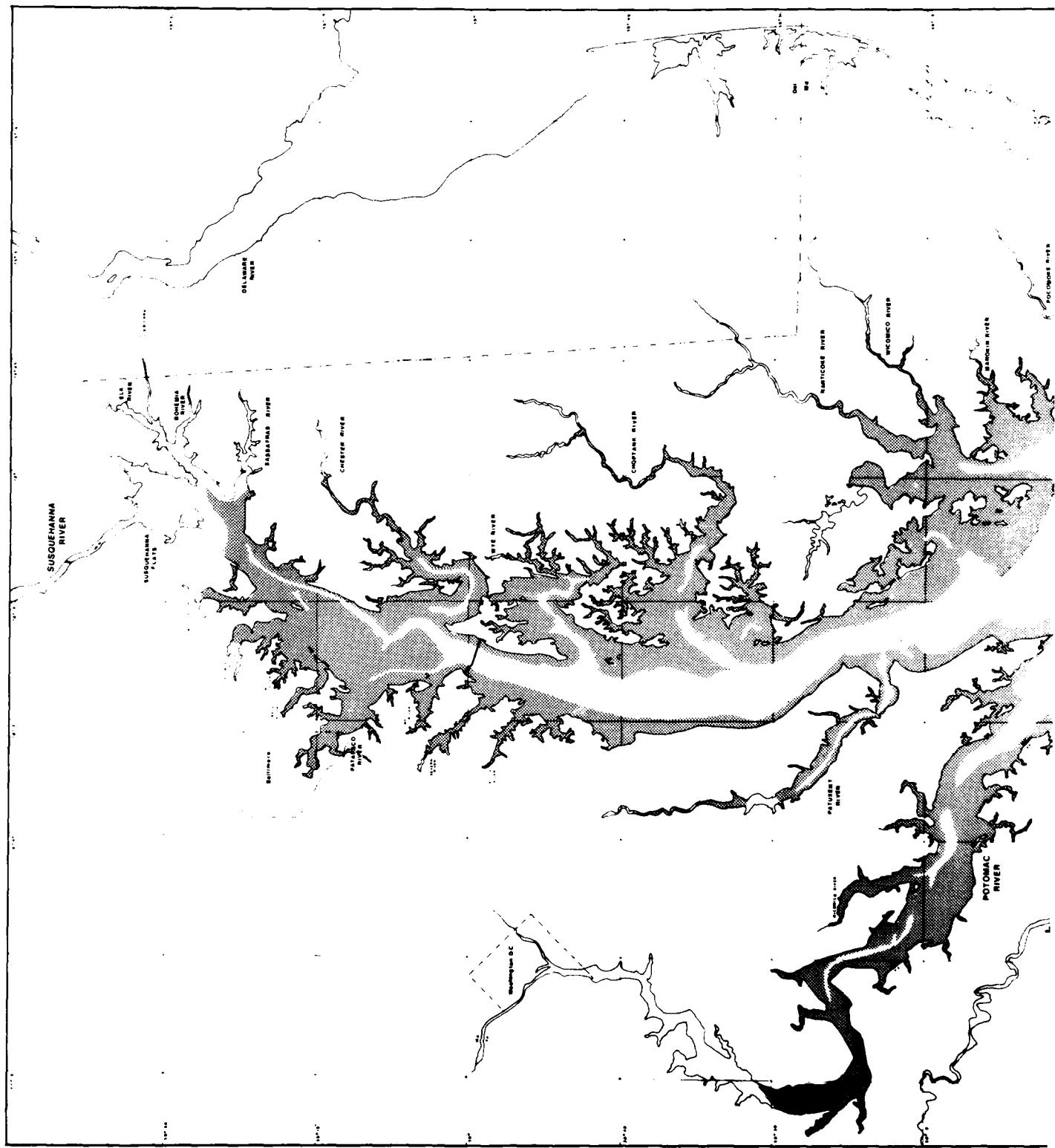
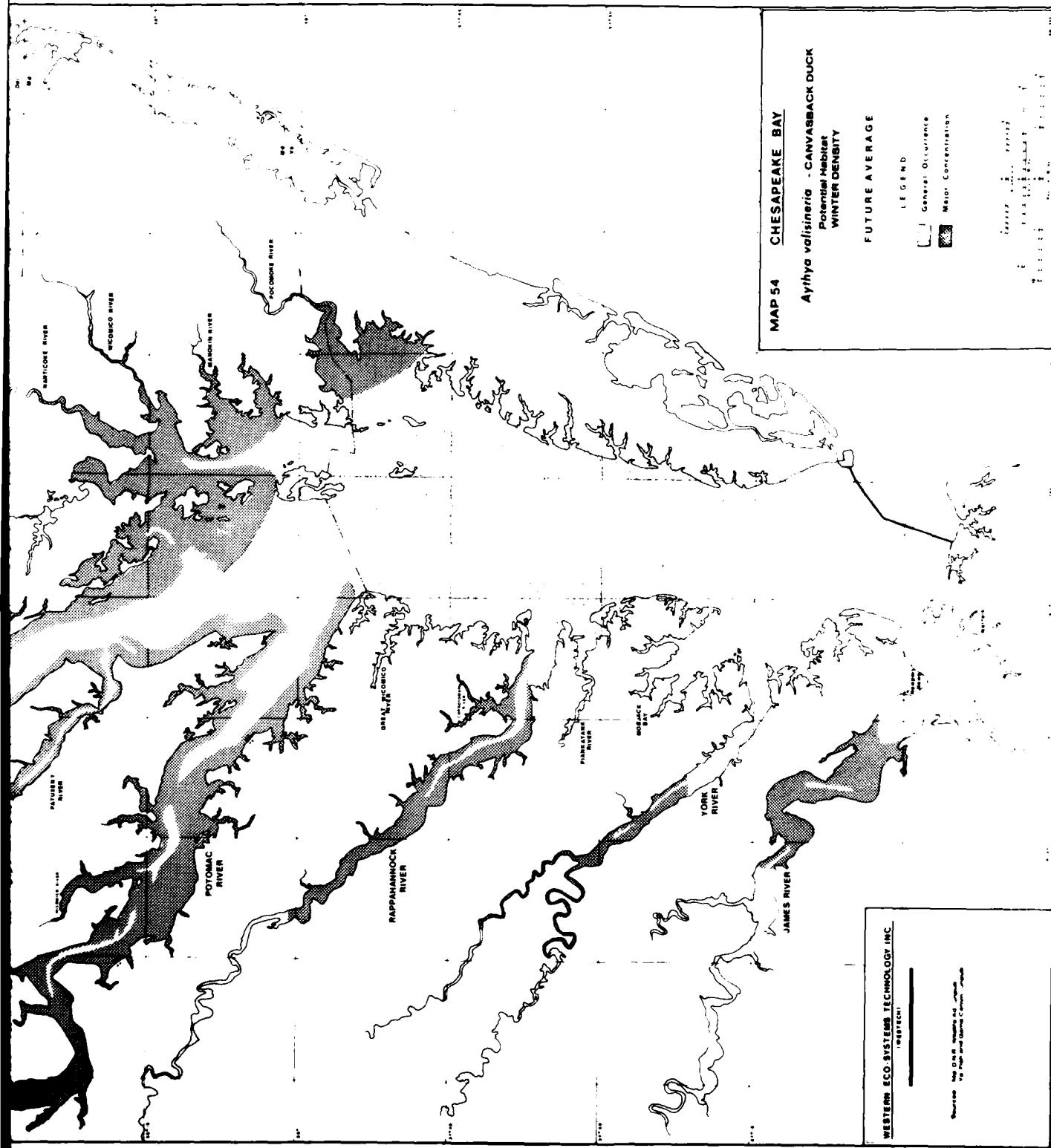


Plate 72





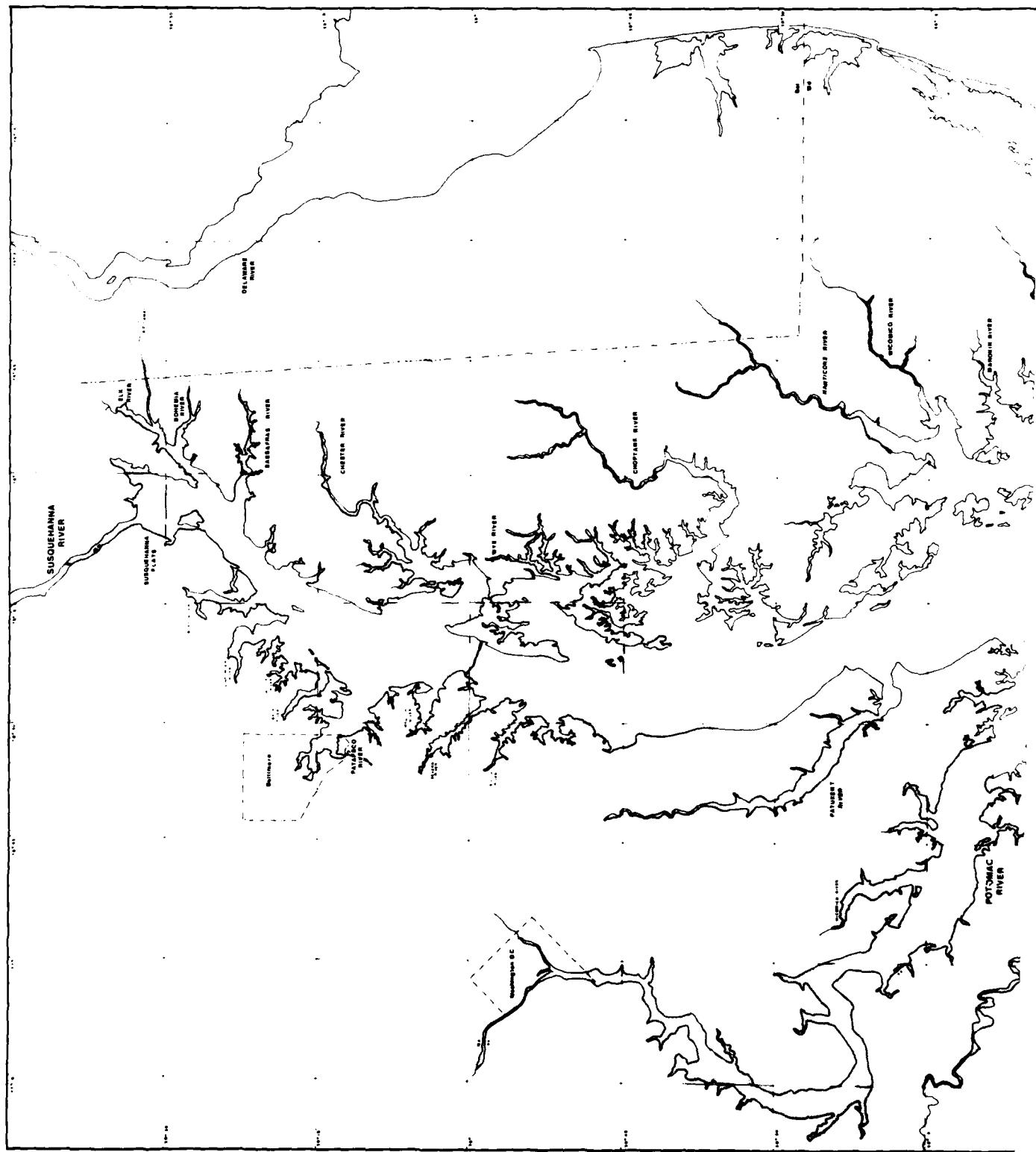
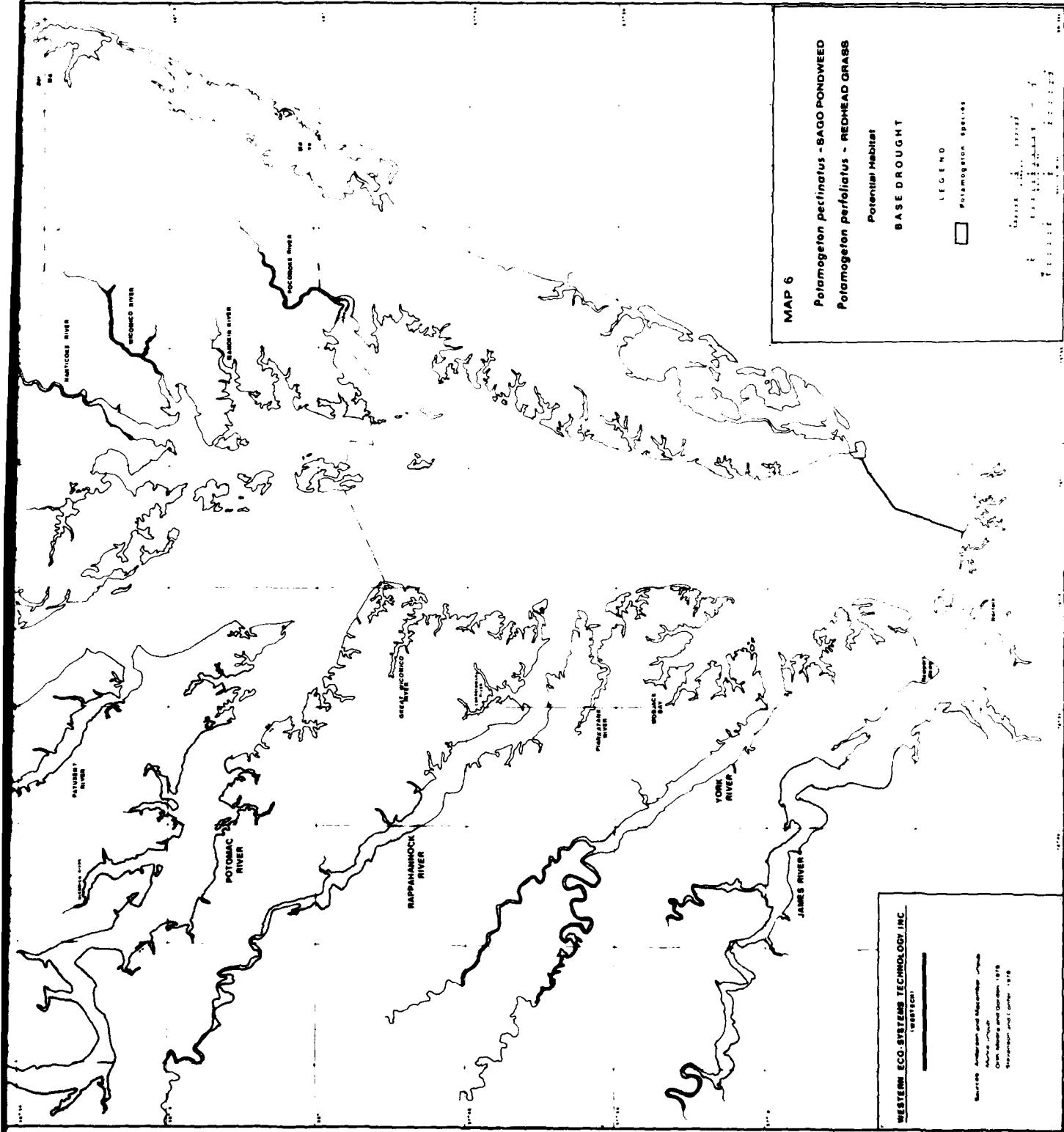
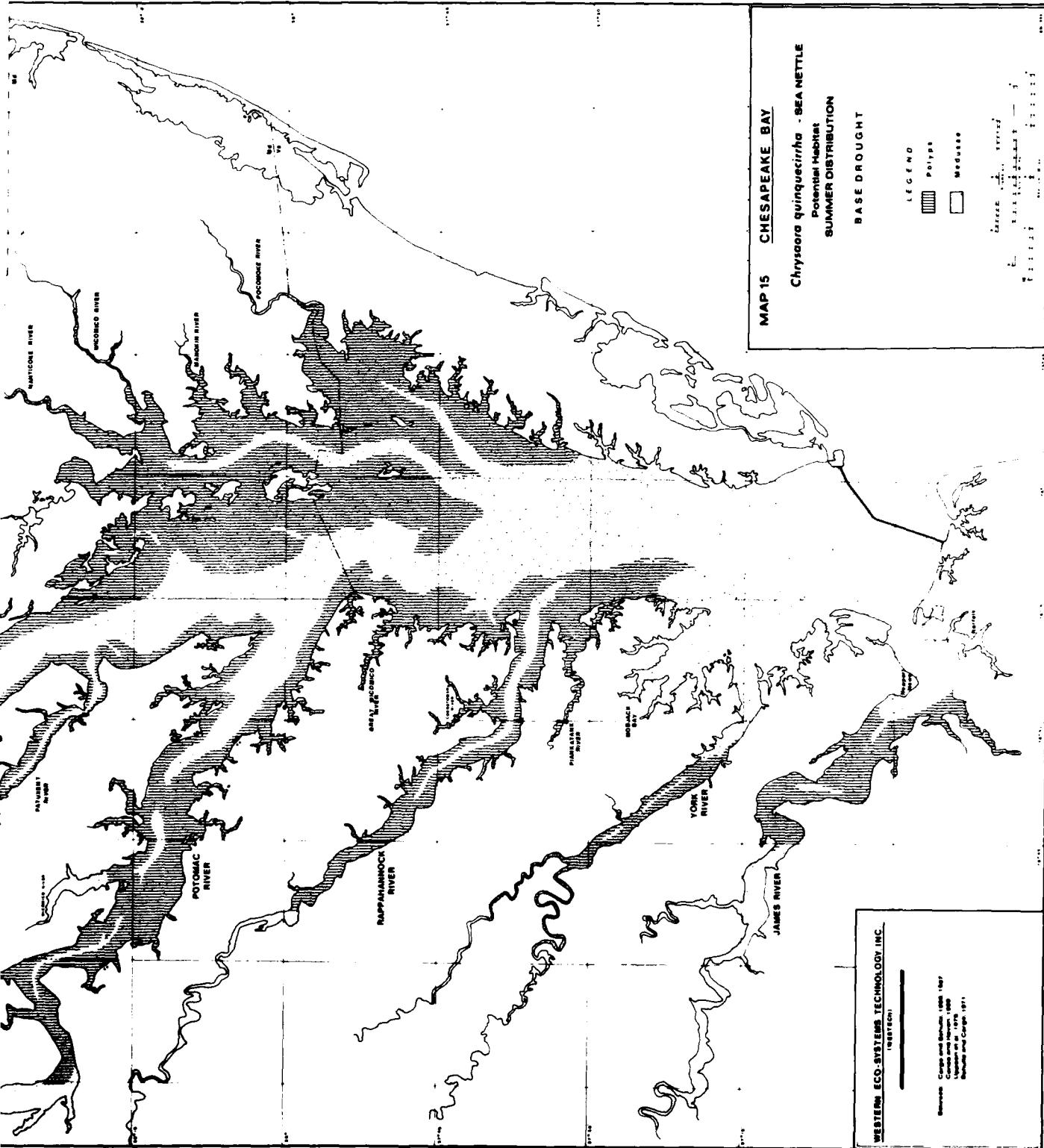
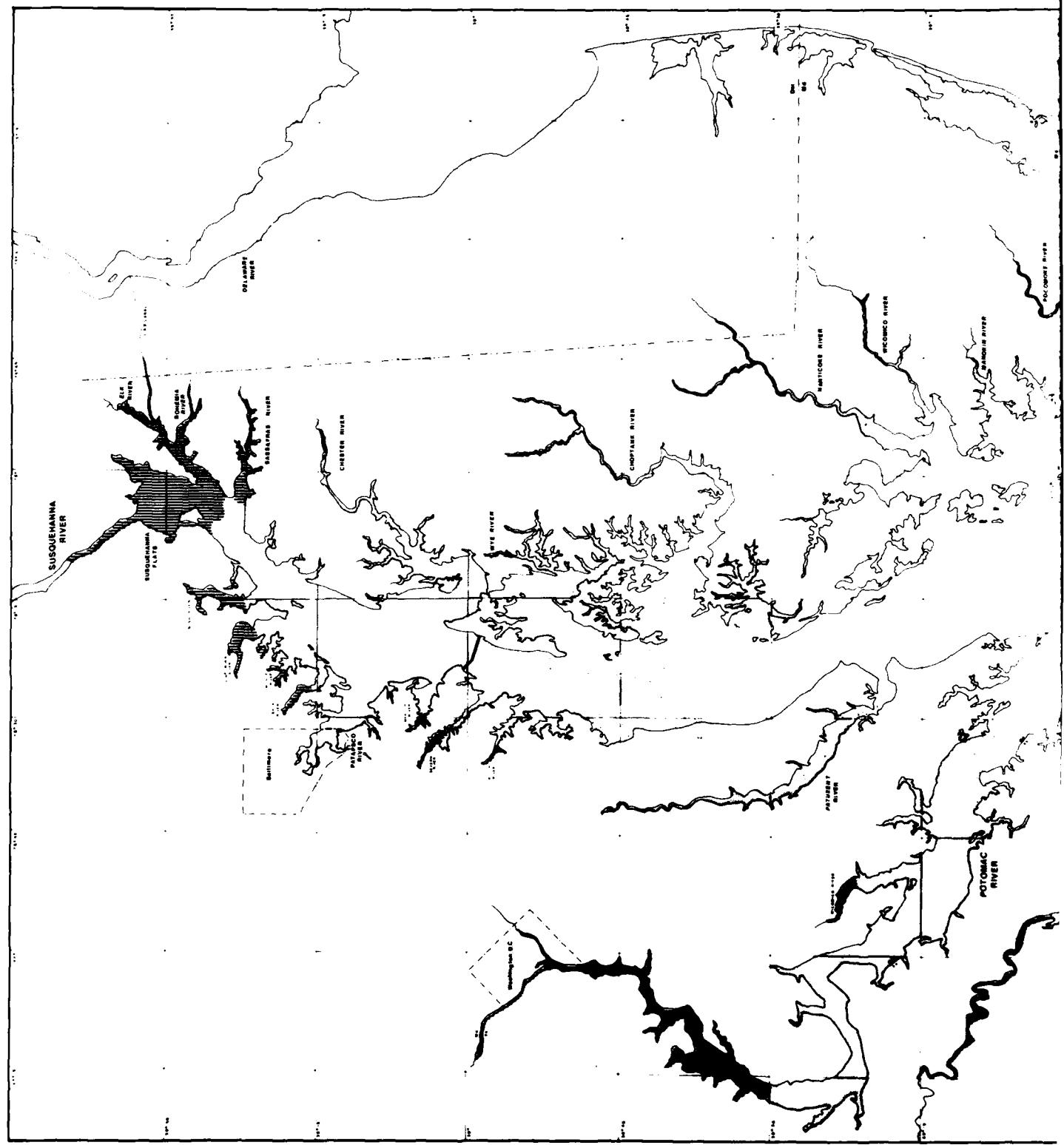


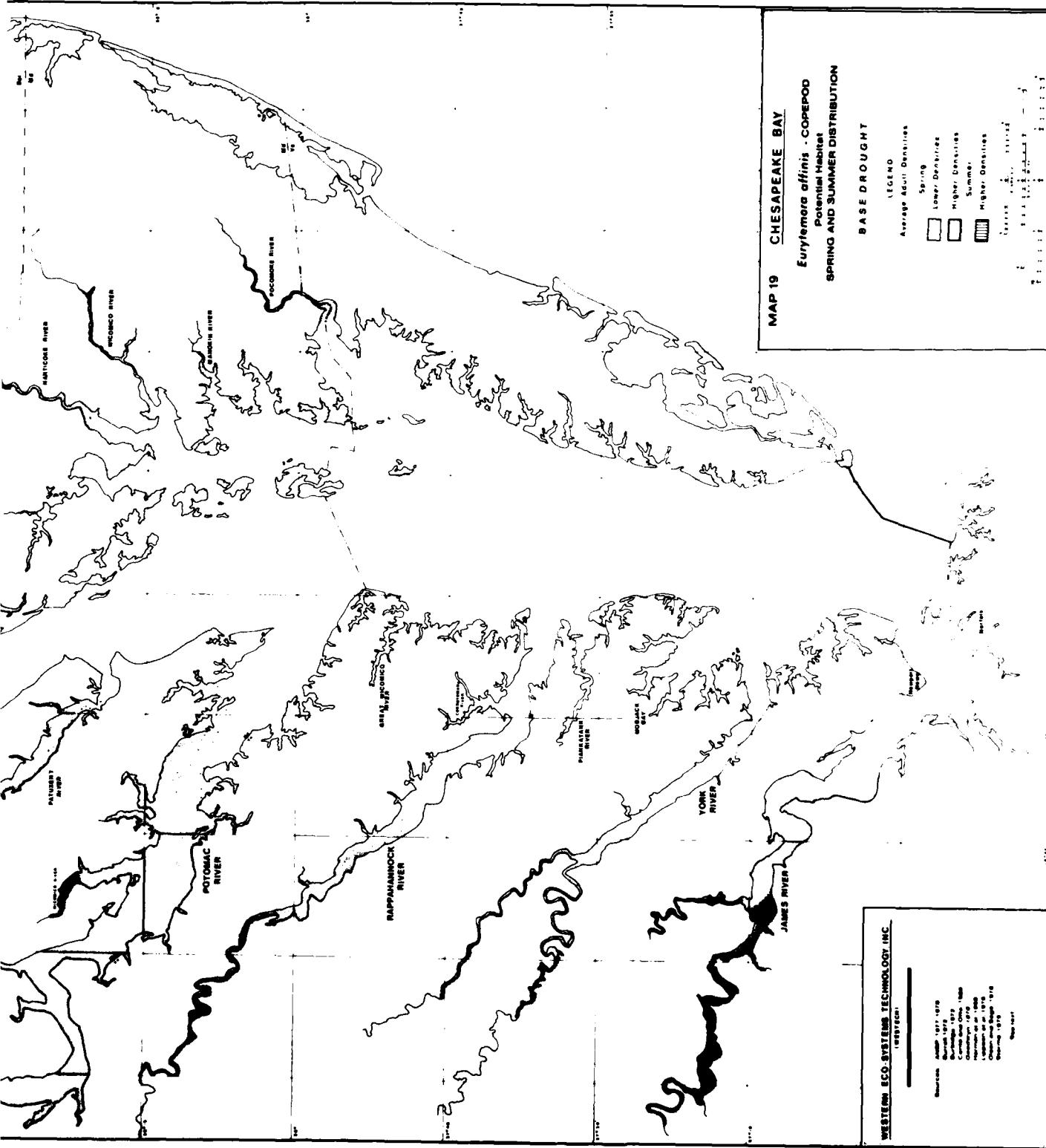
Plate 74

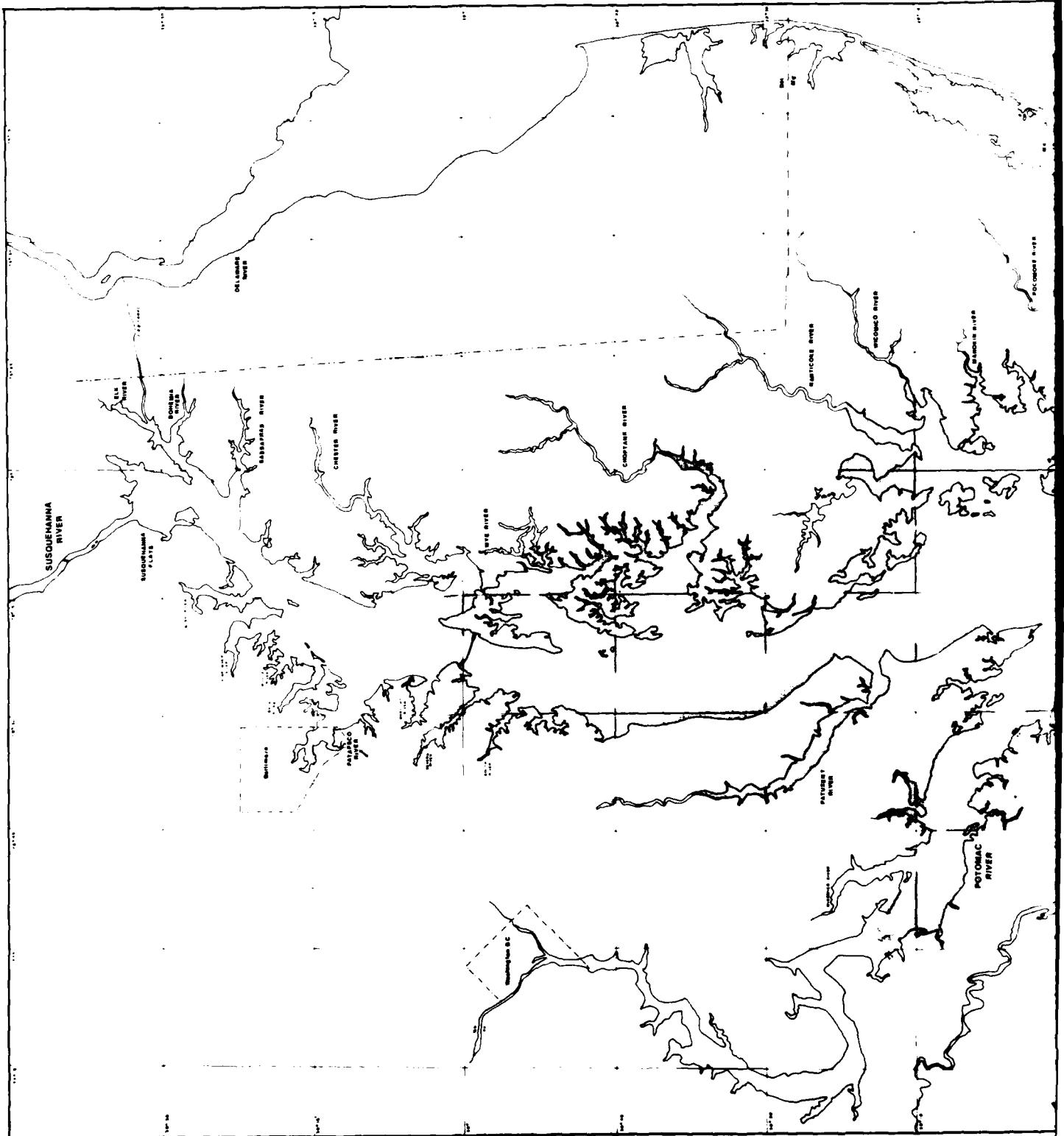


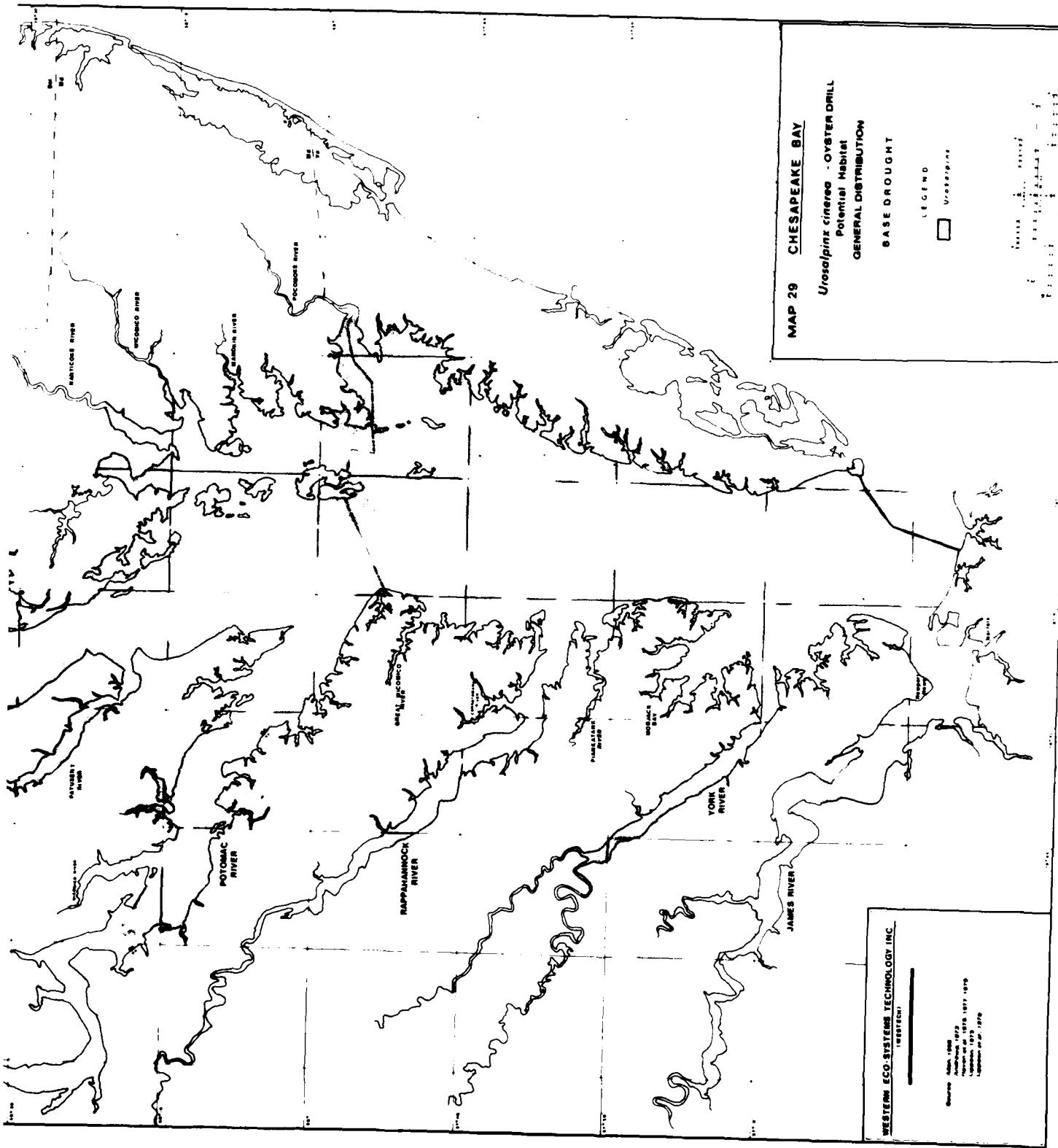


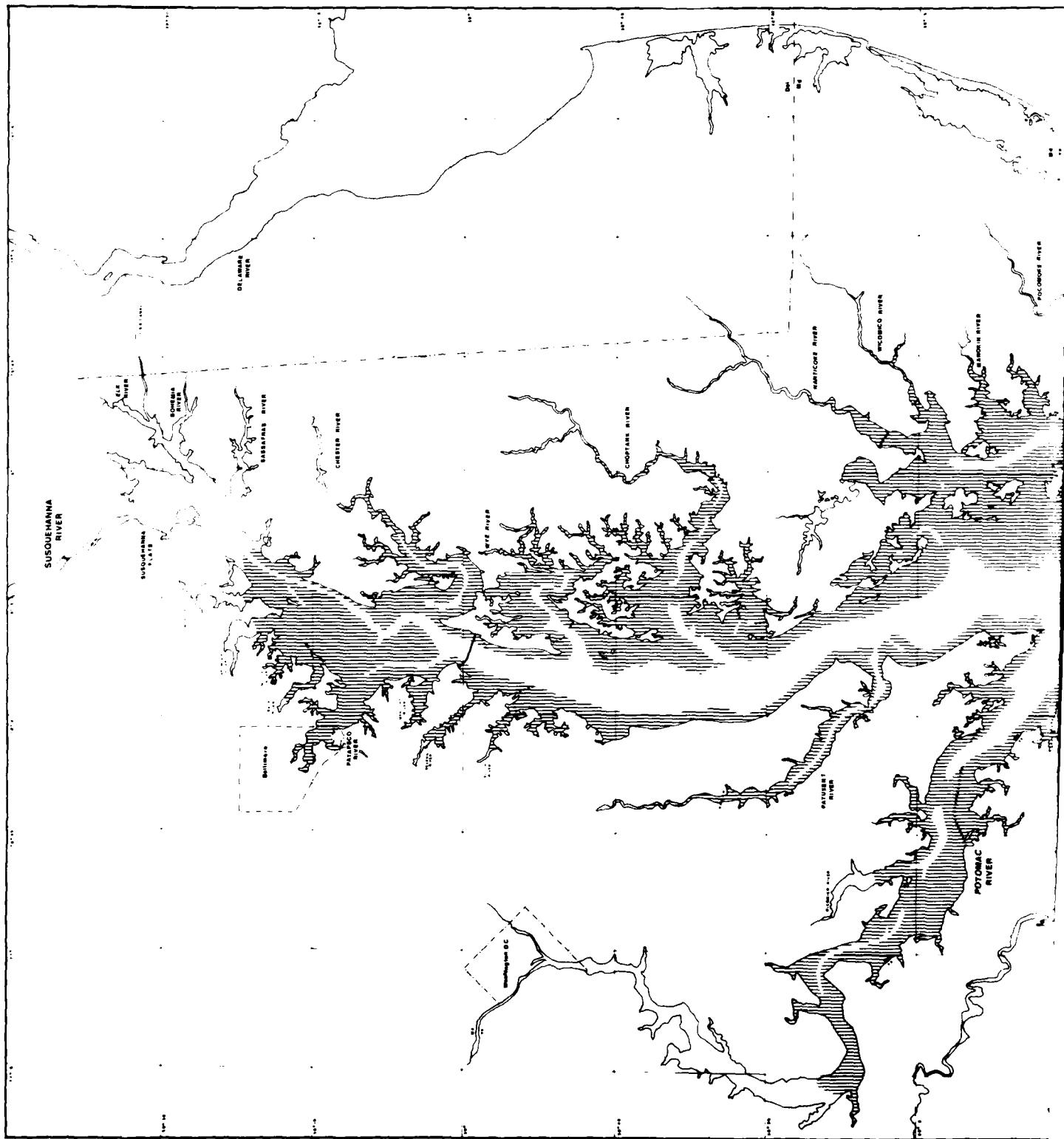


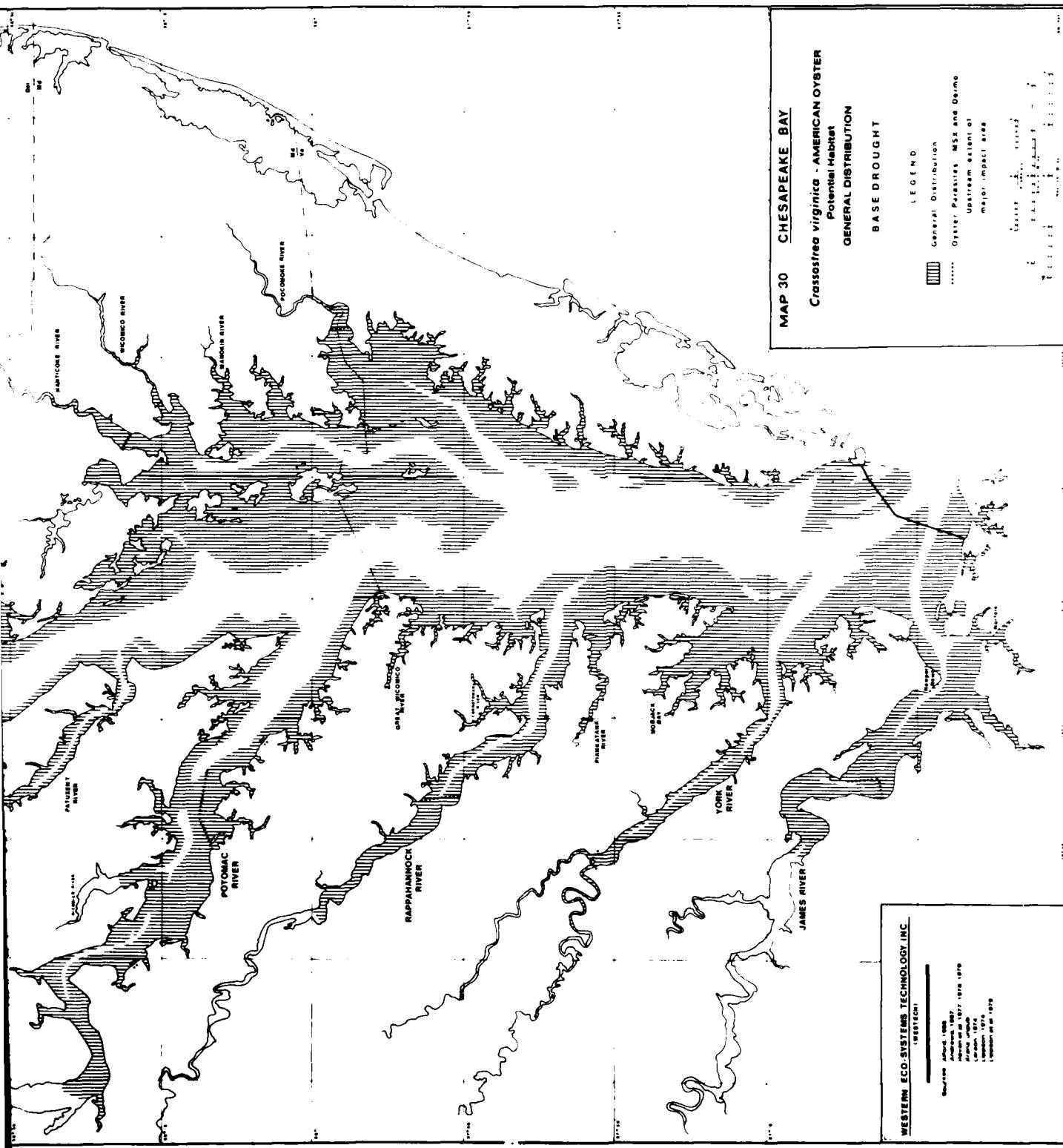


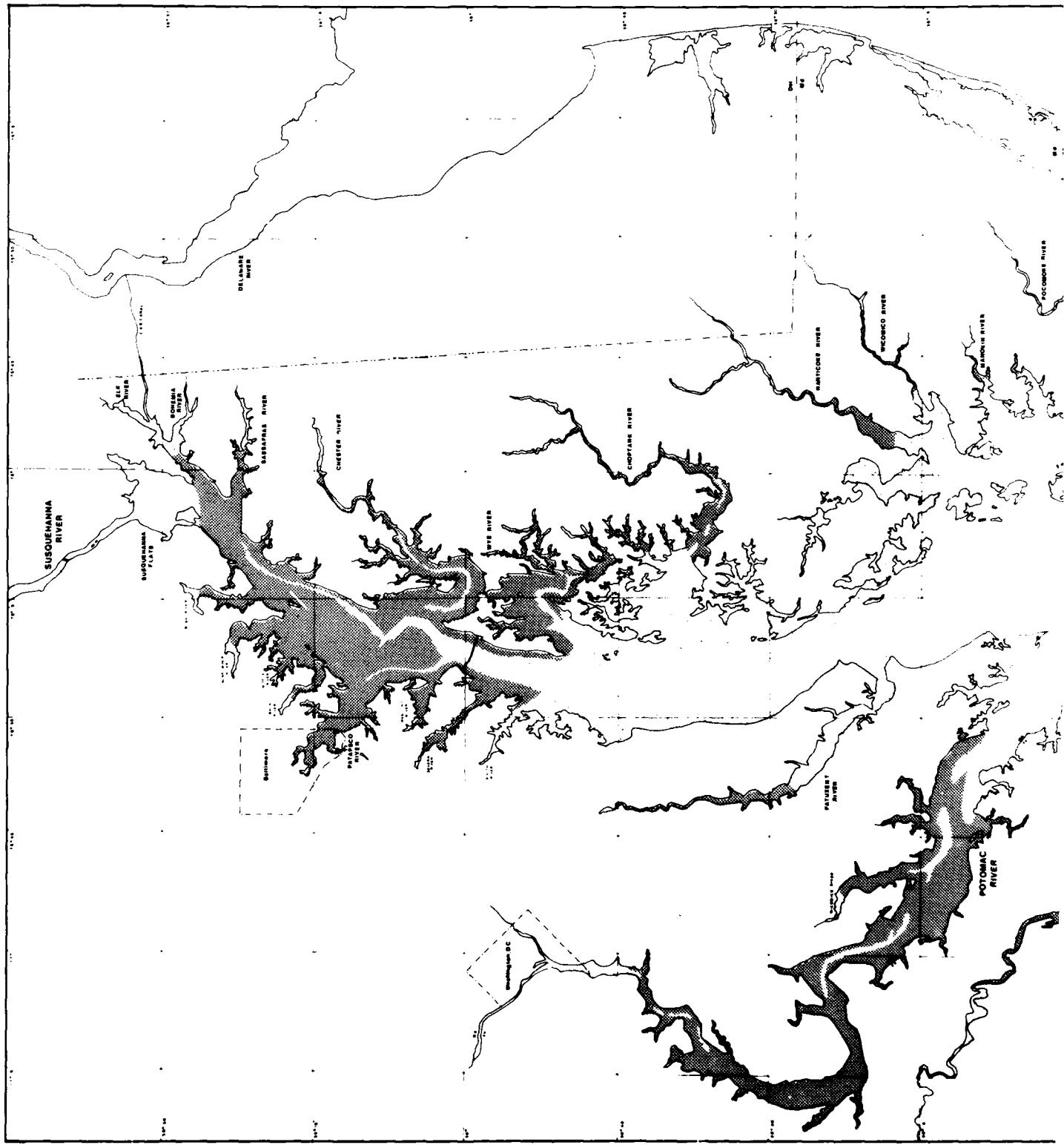












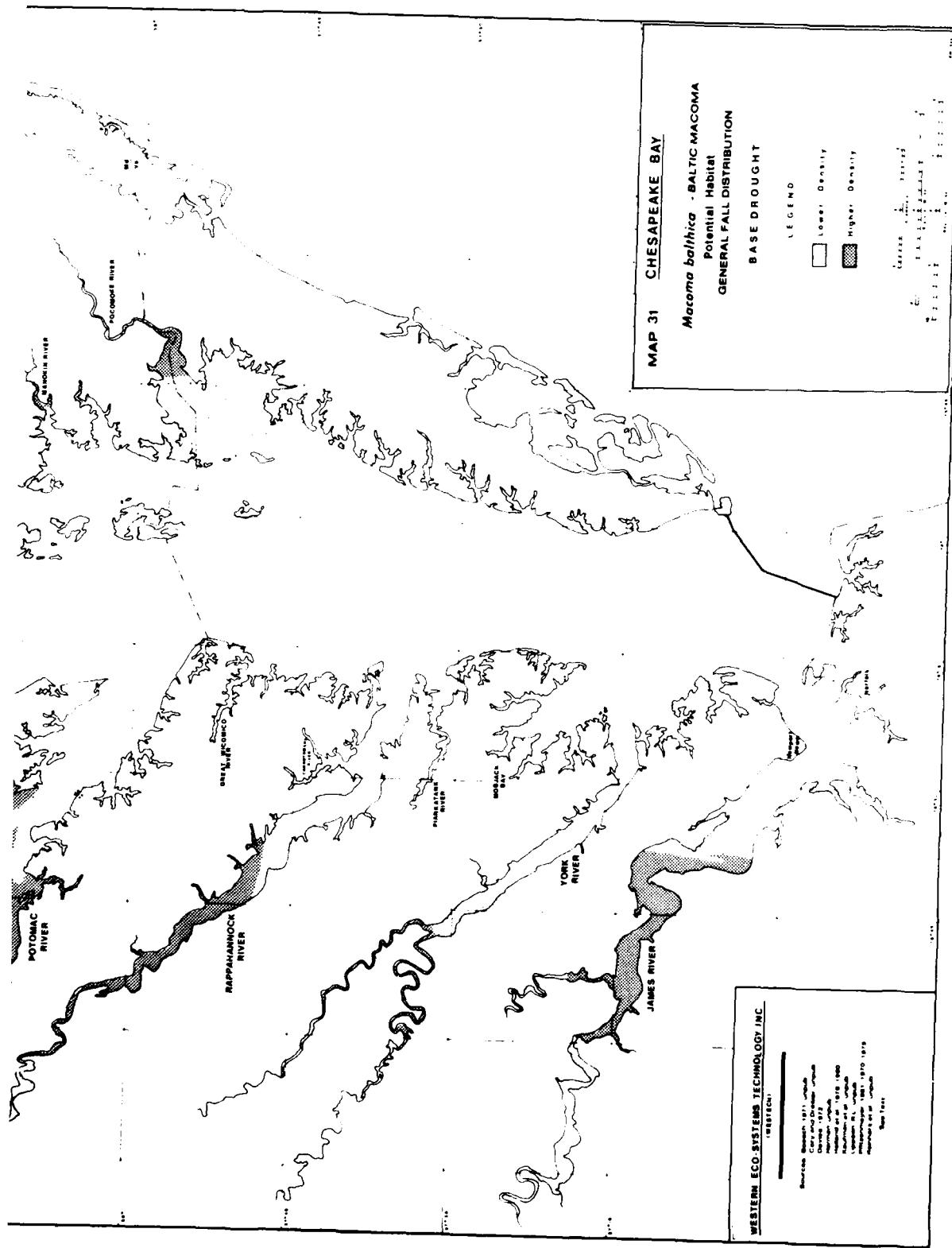


Plate 79

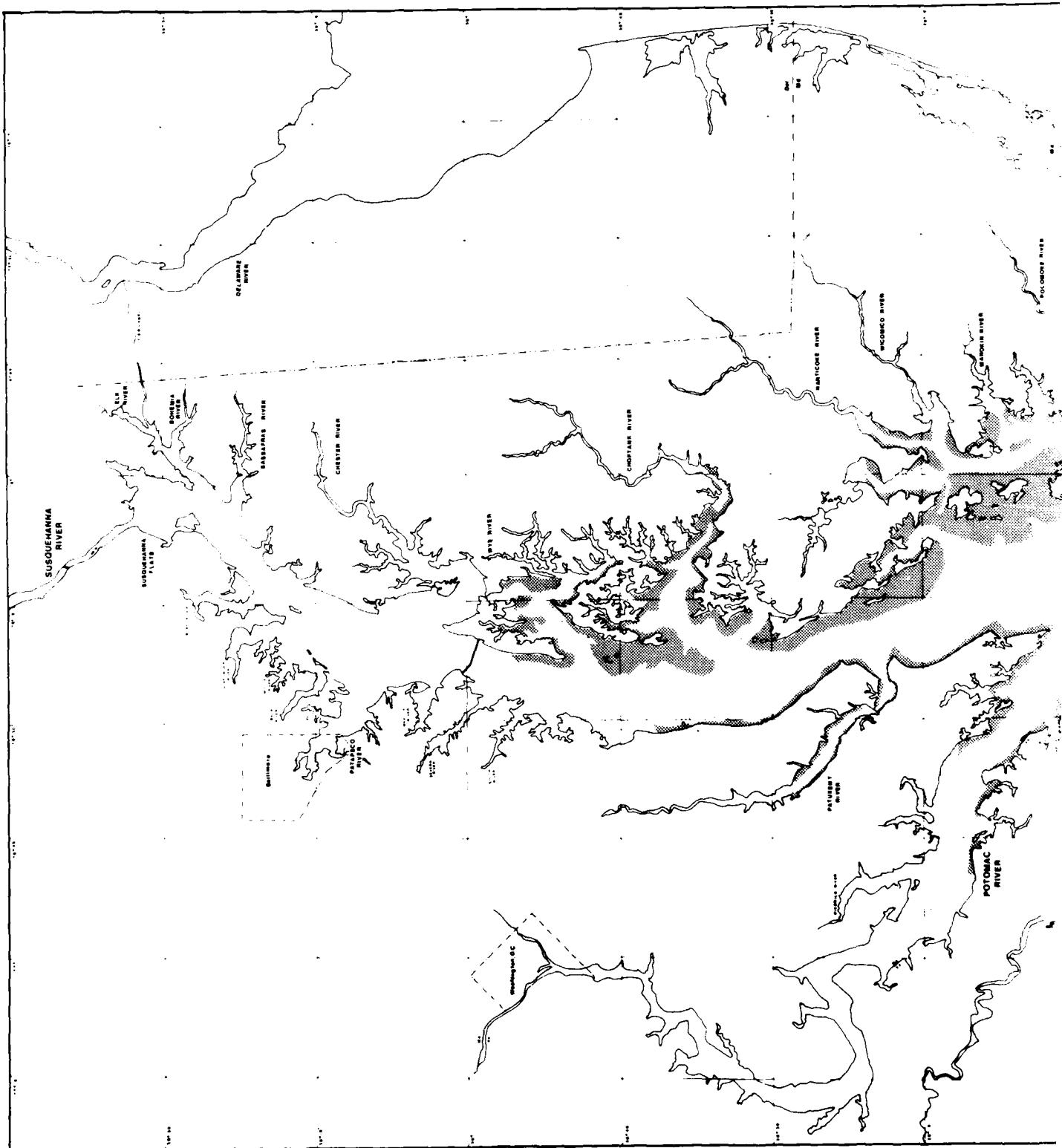
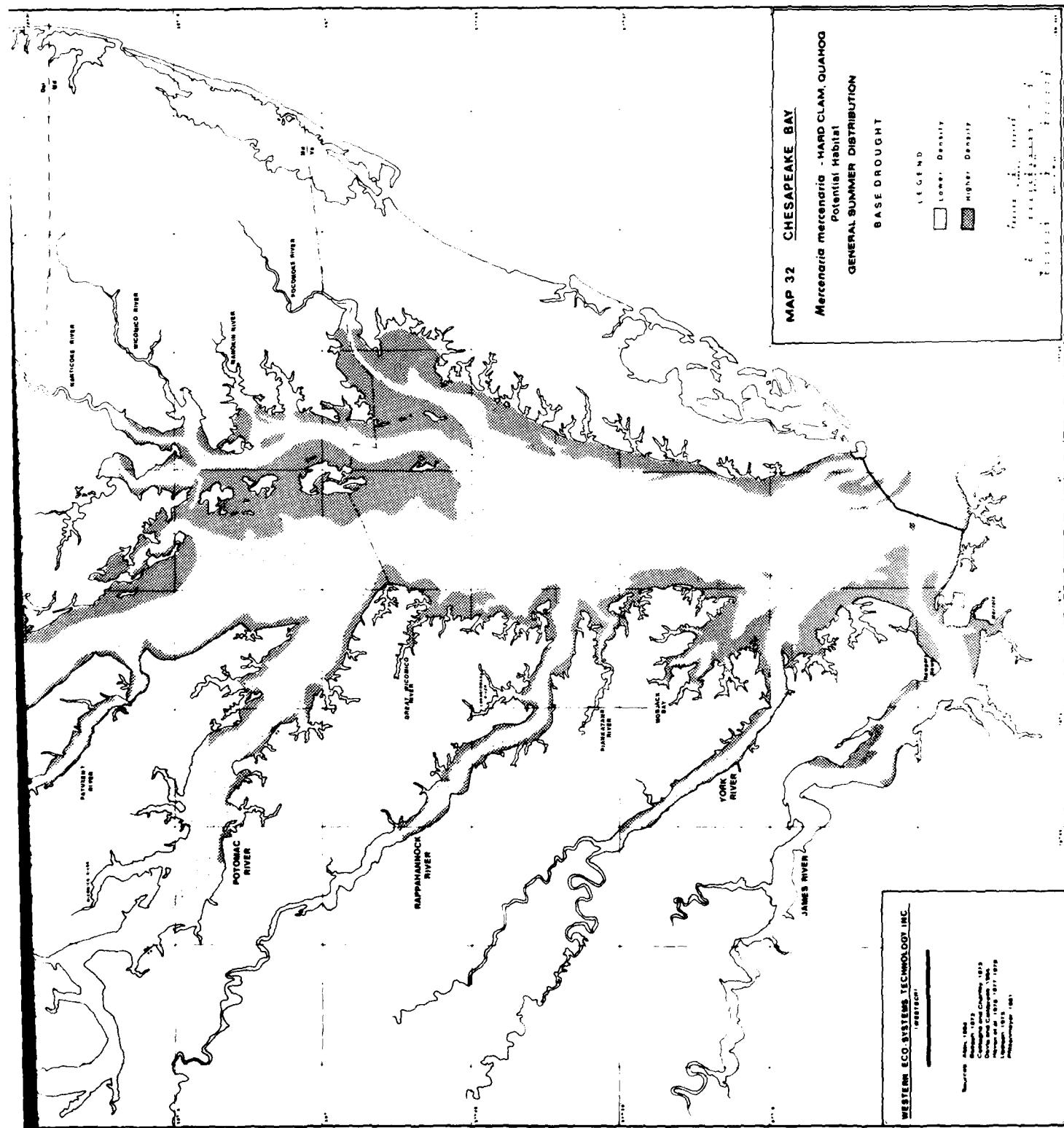
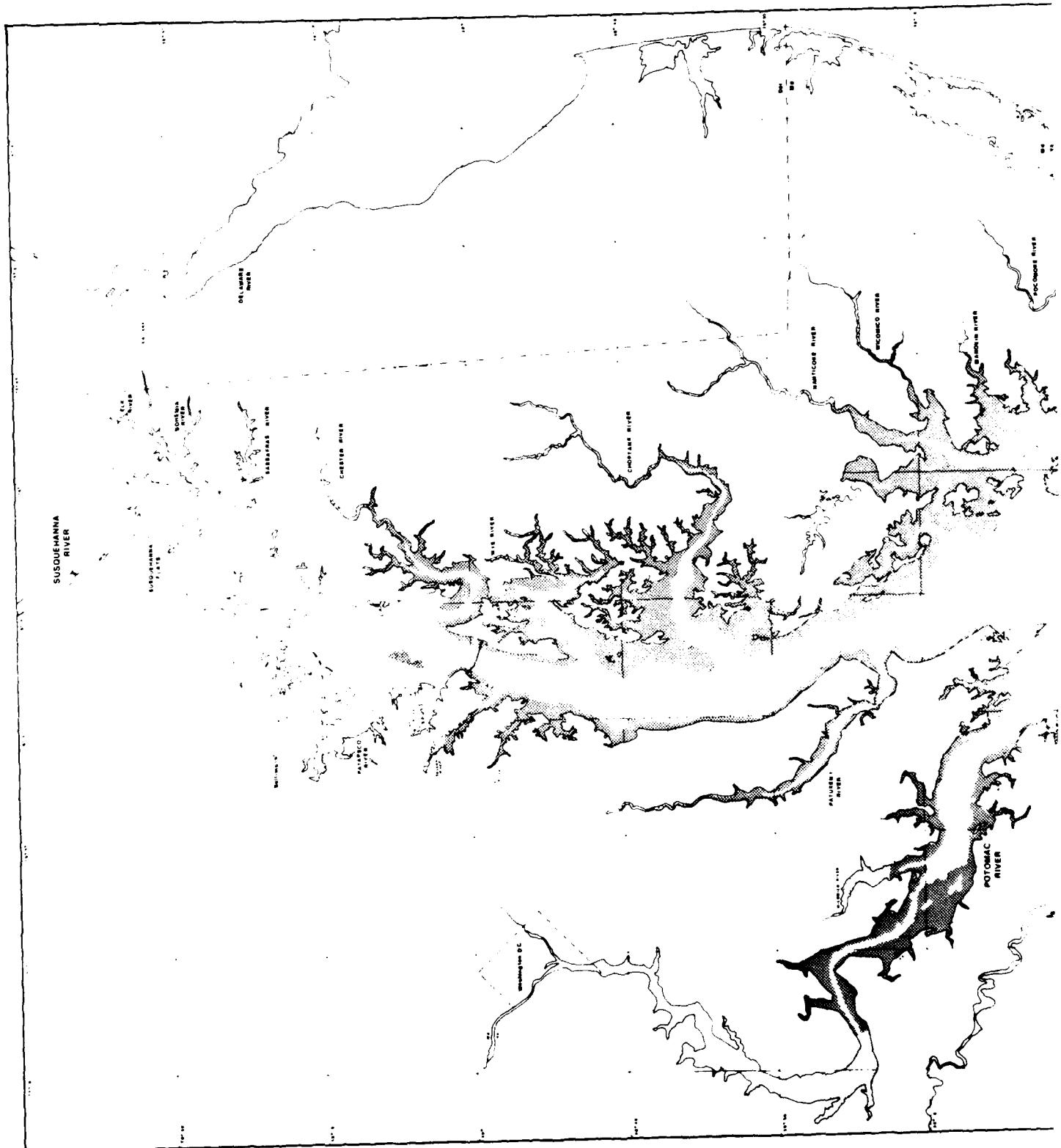
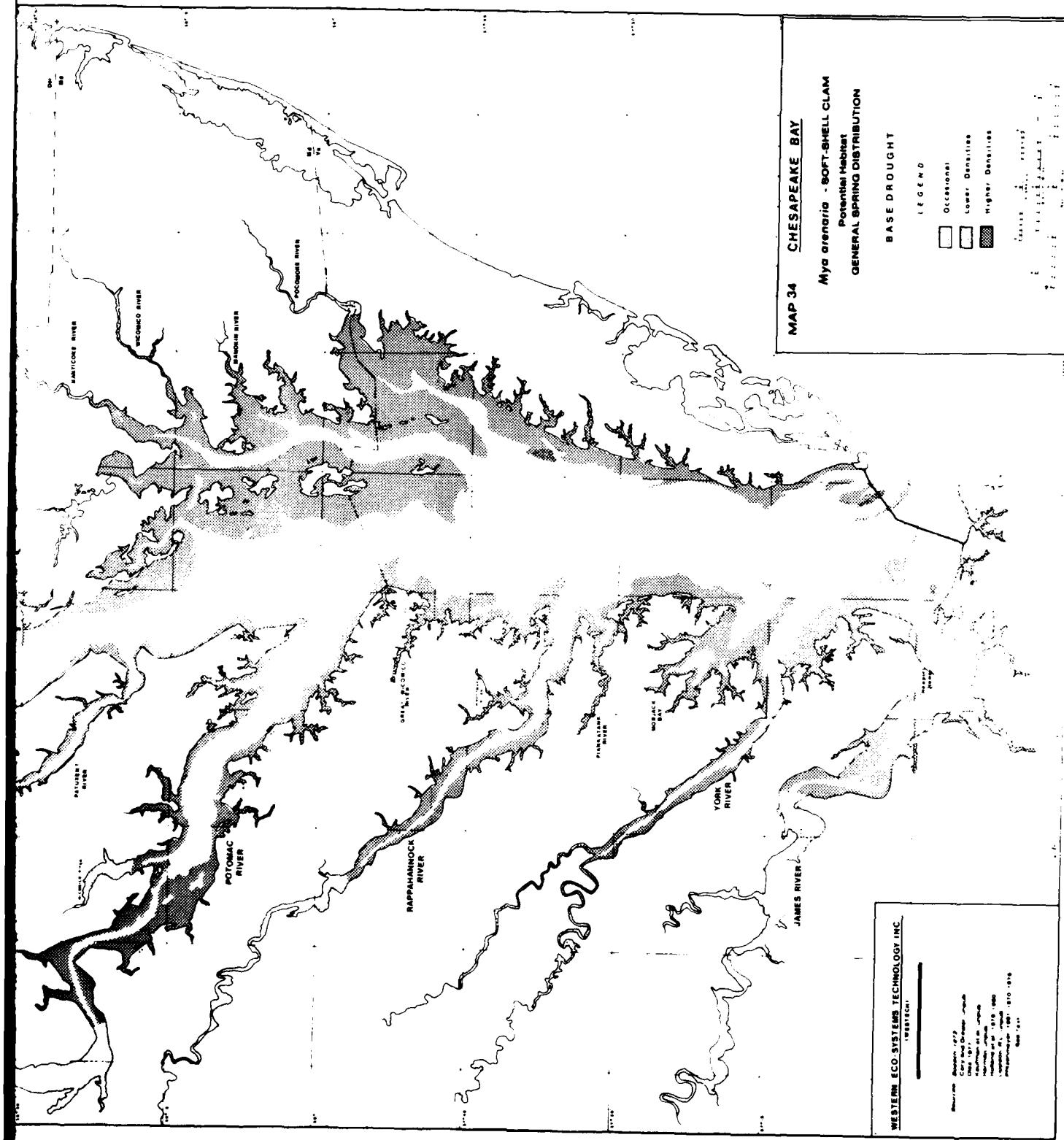
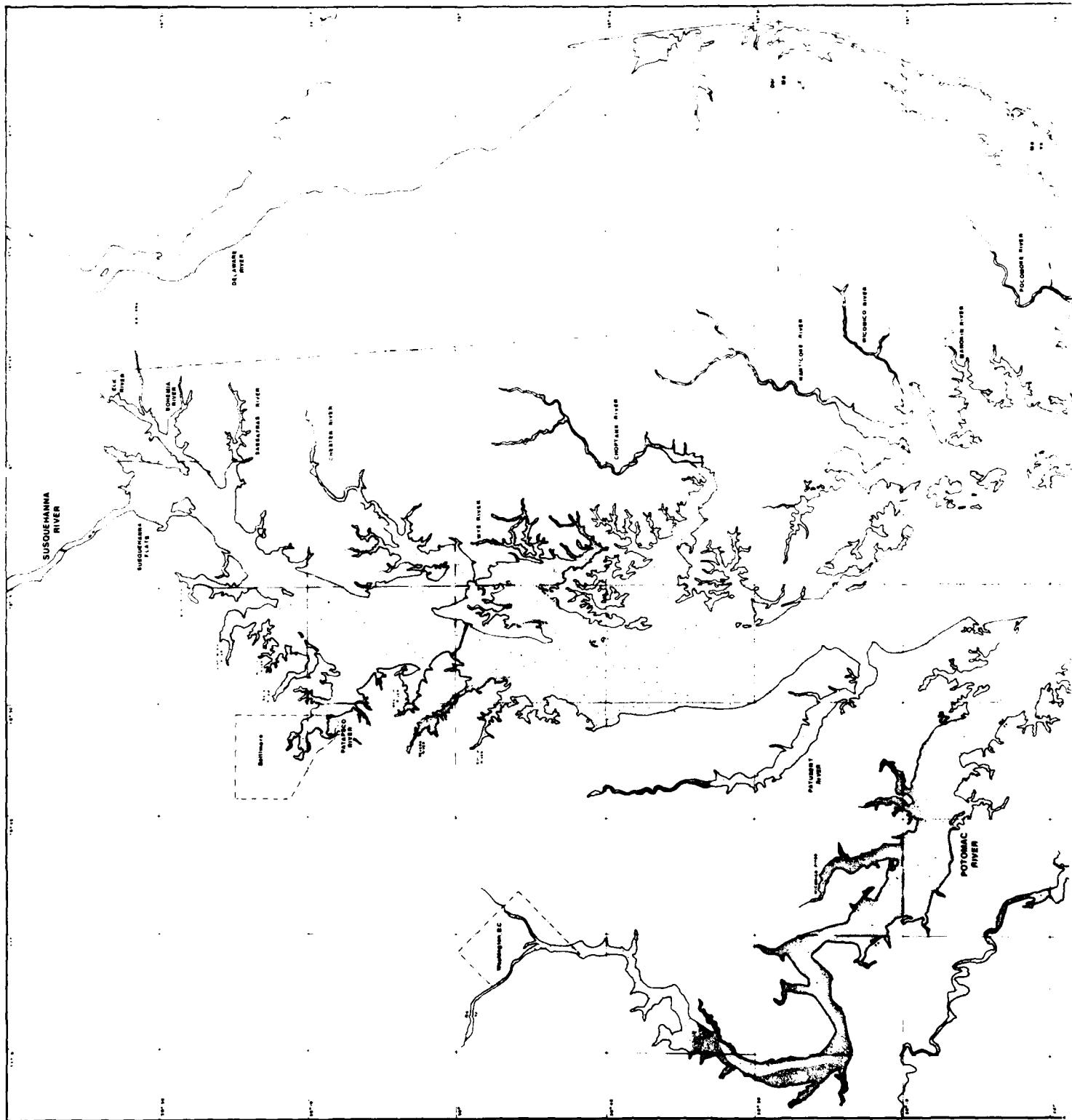


Plate 80









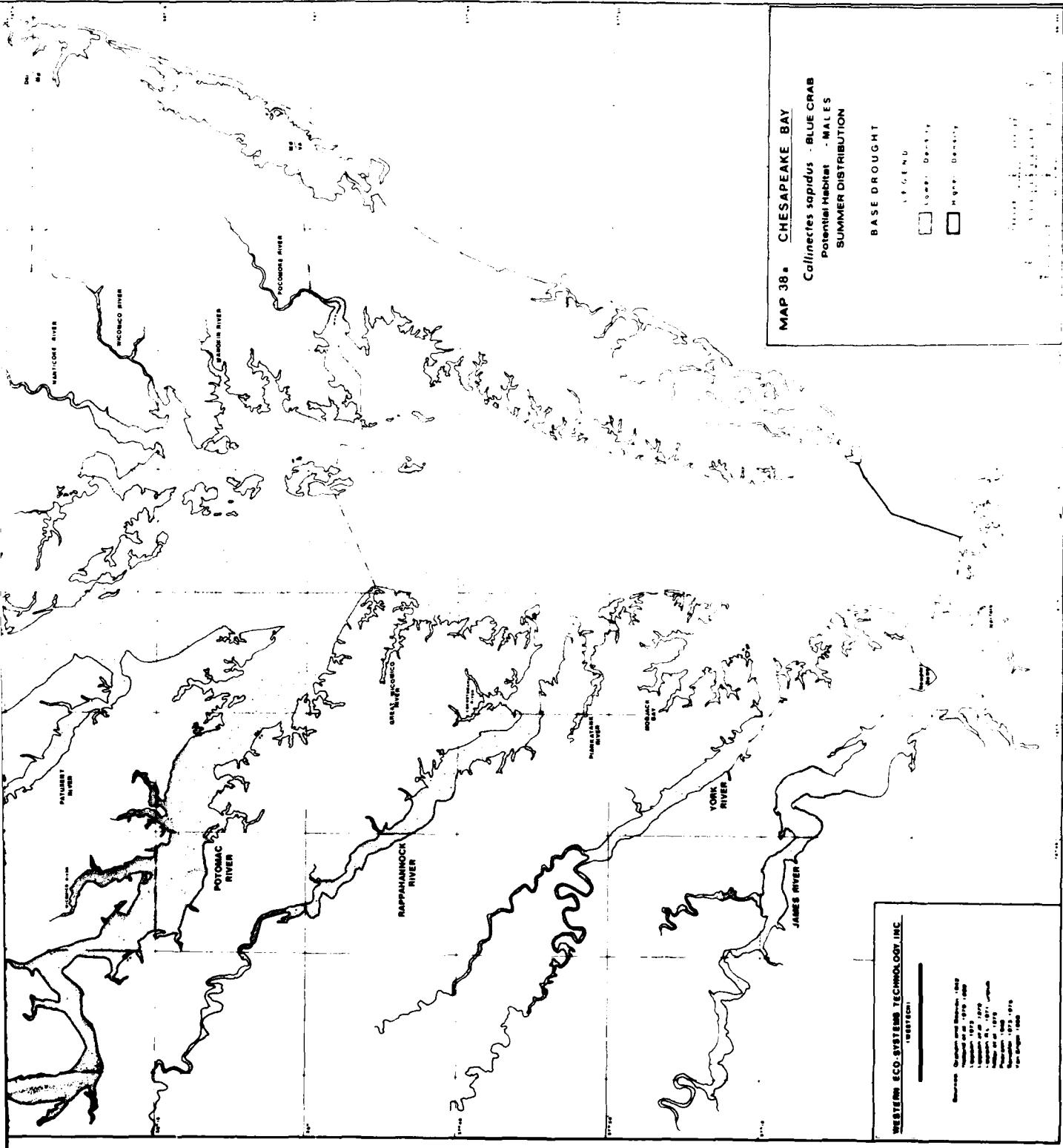
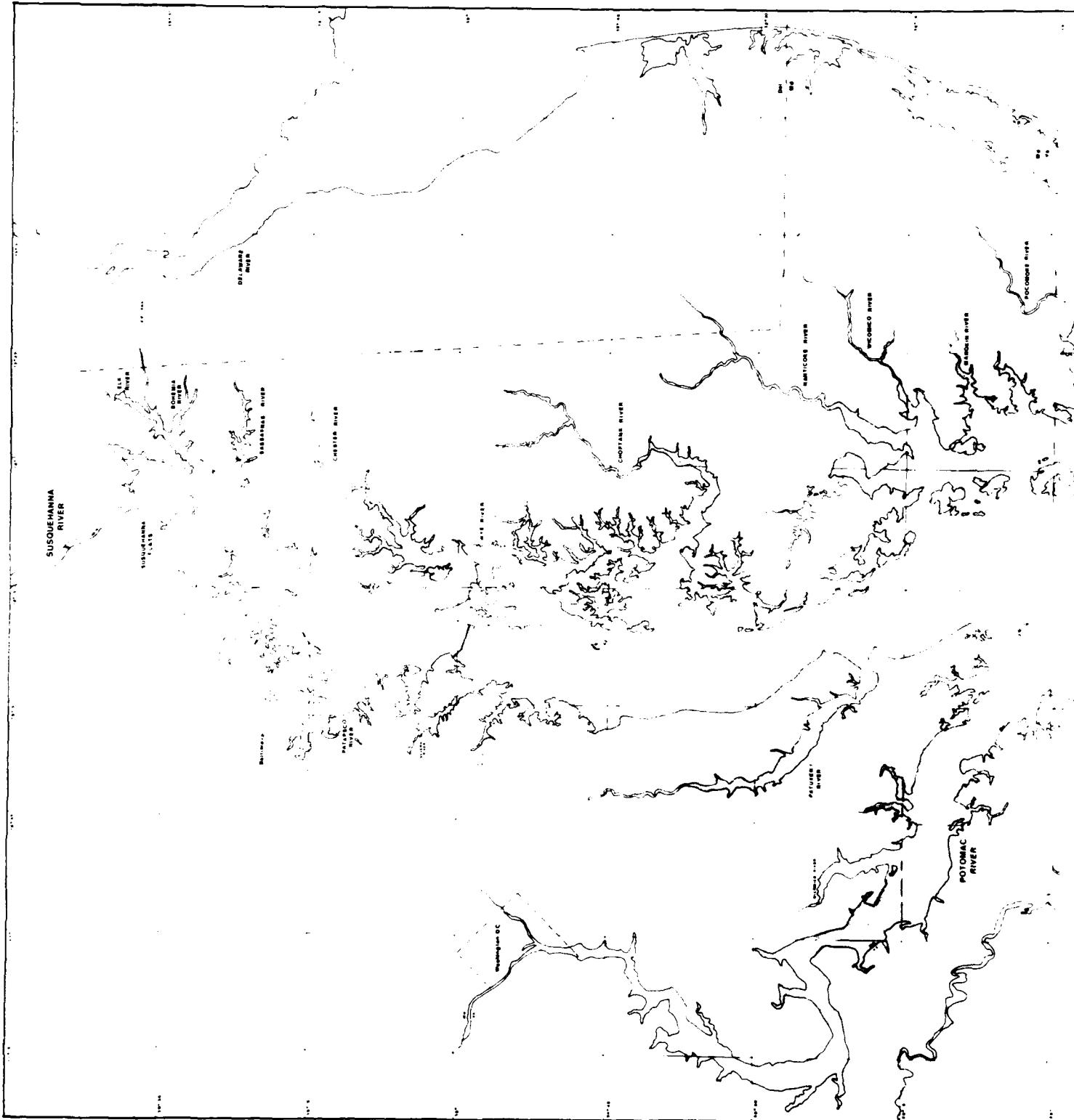
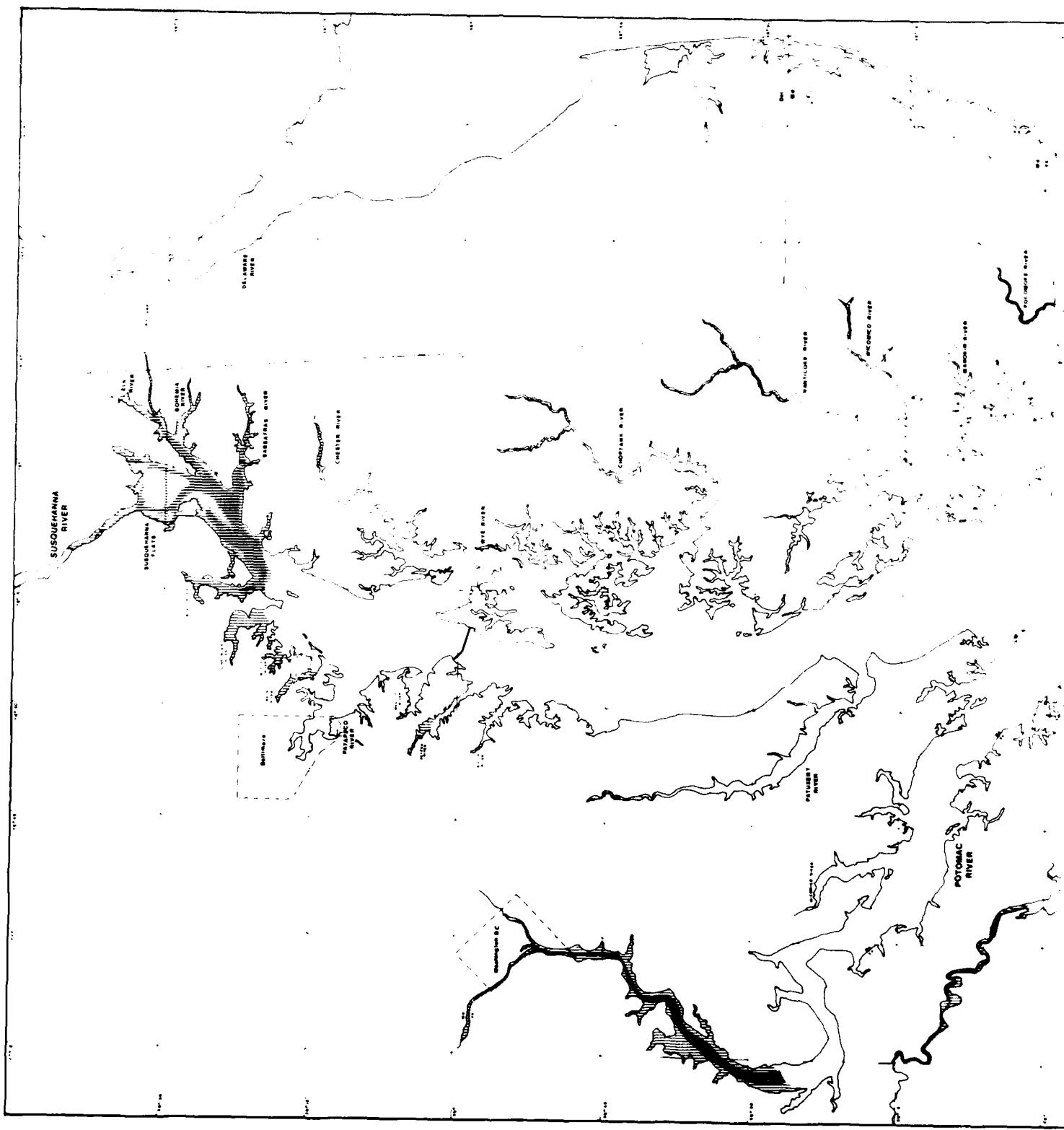


Plate 82







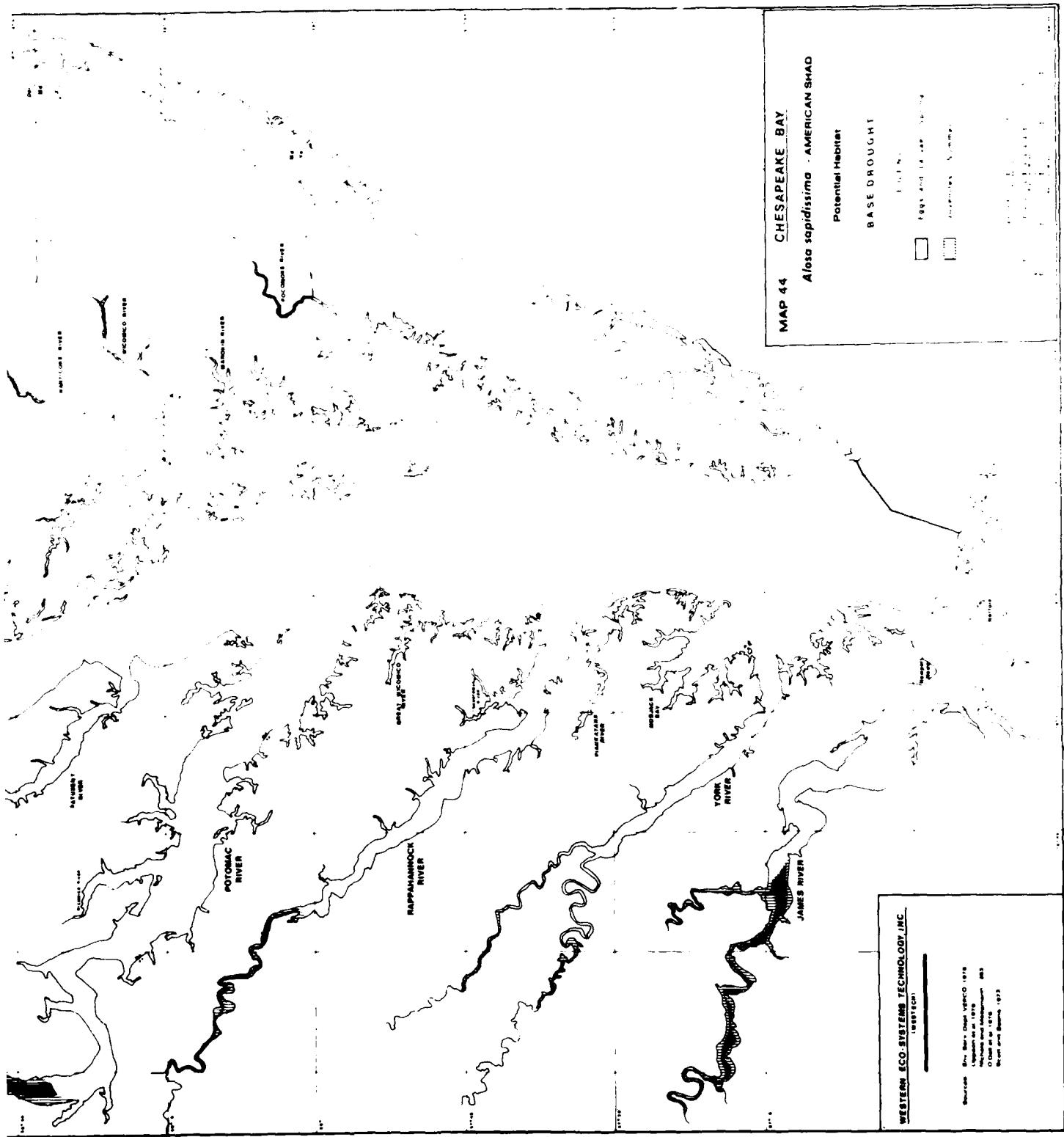
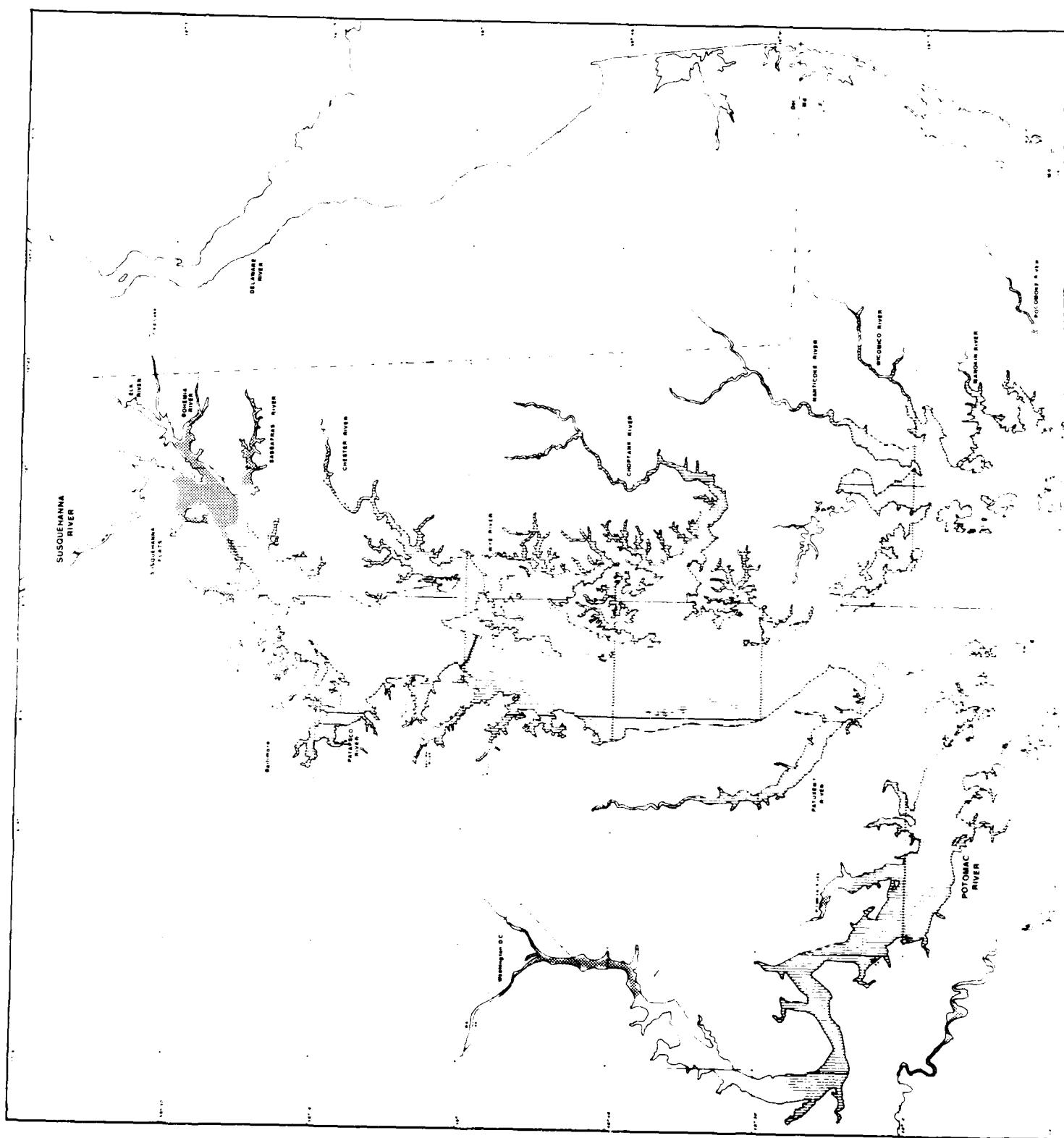
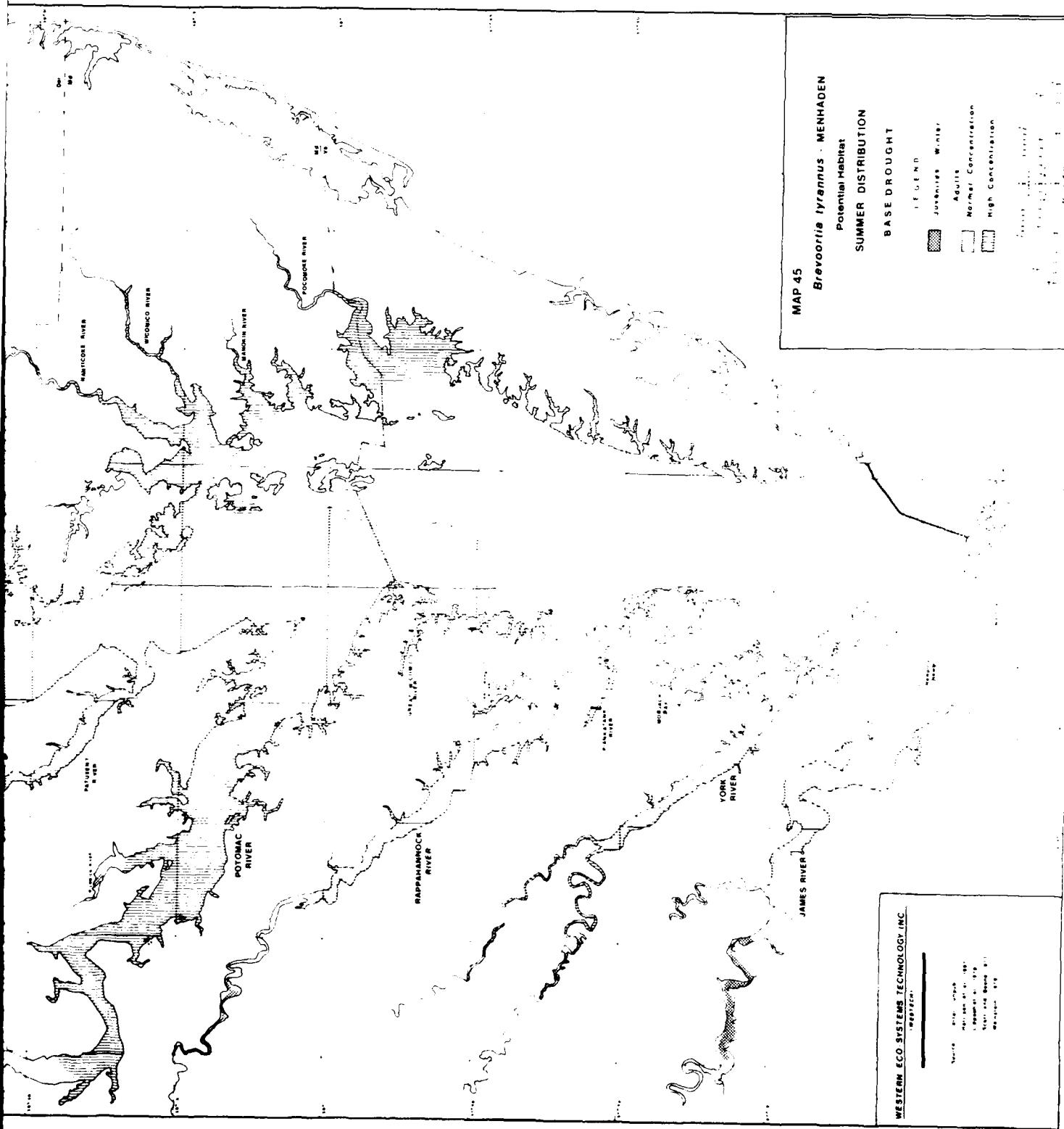
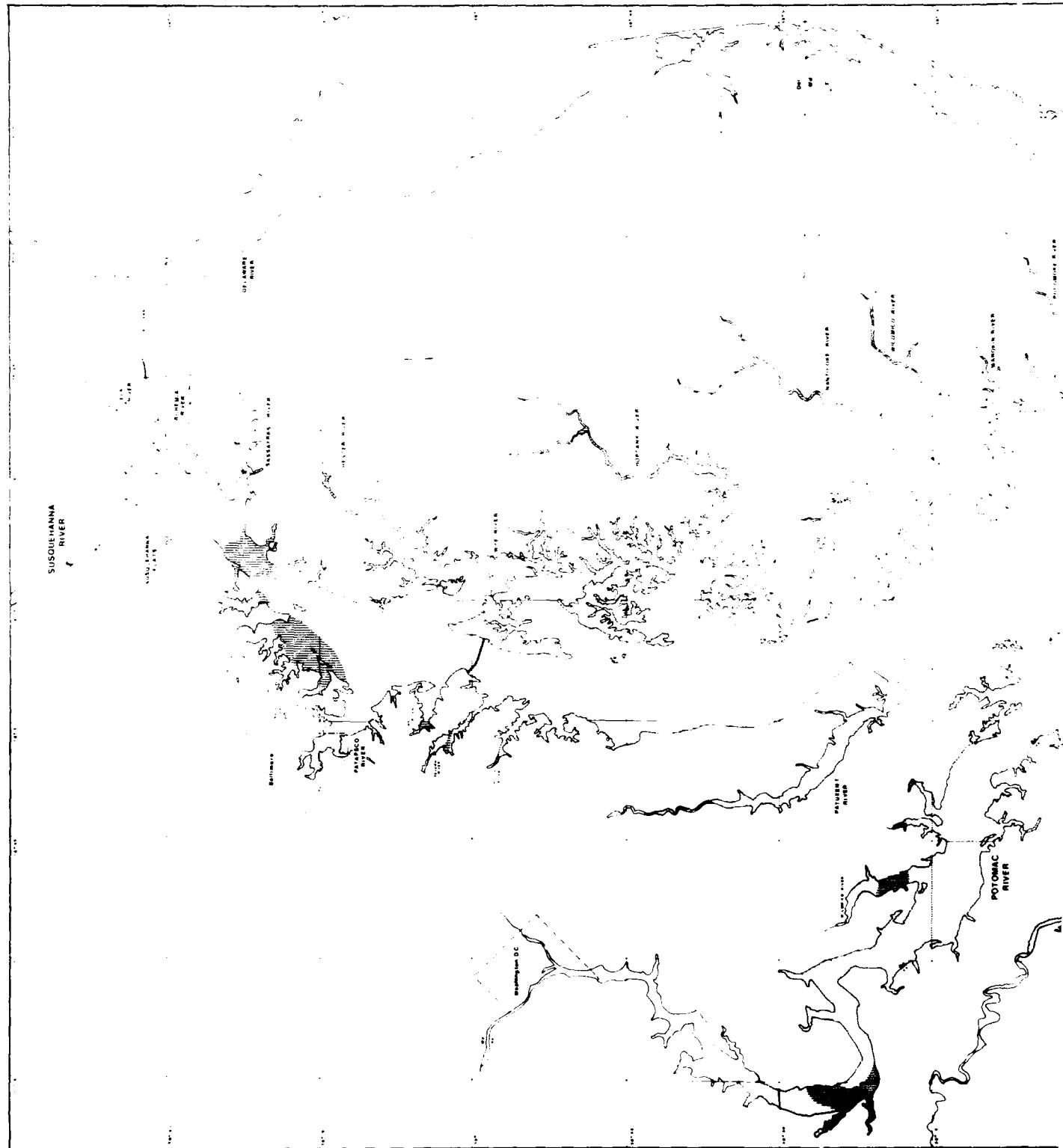


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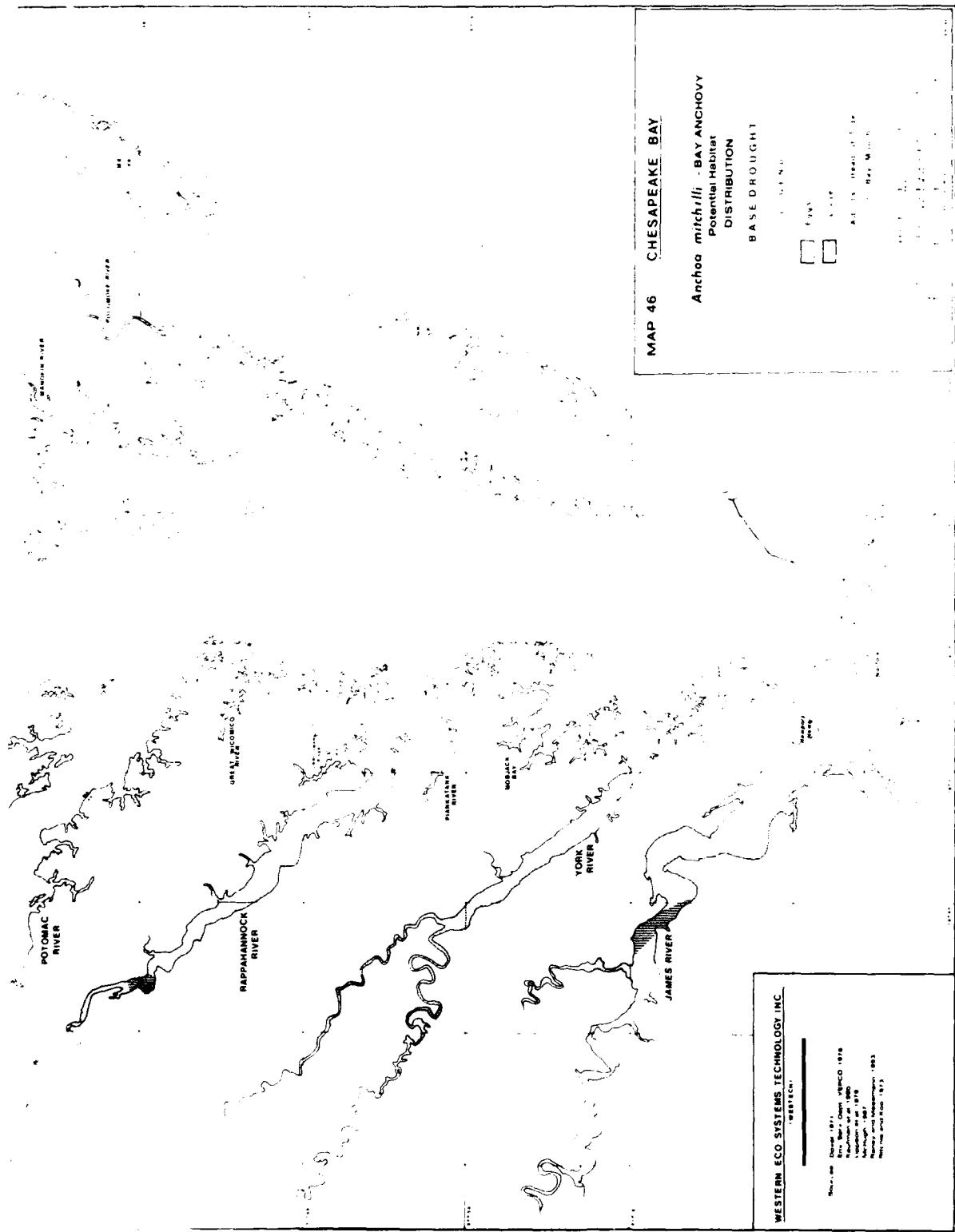


Plate 86

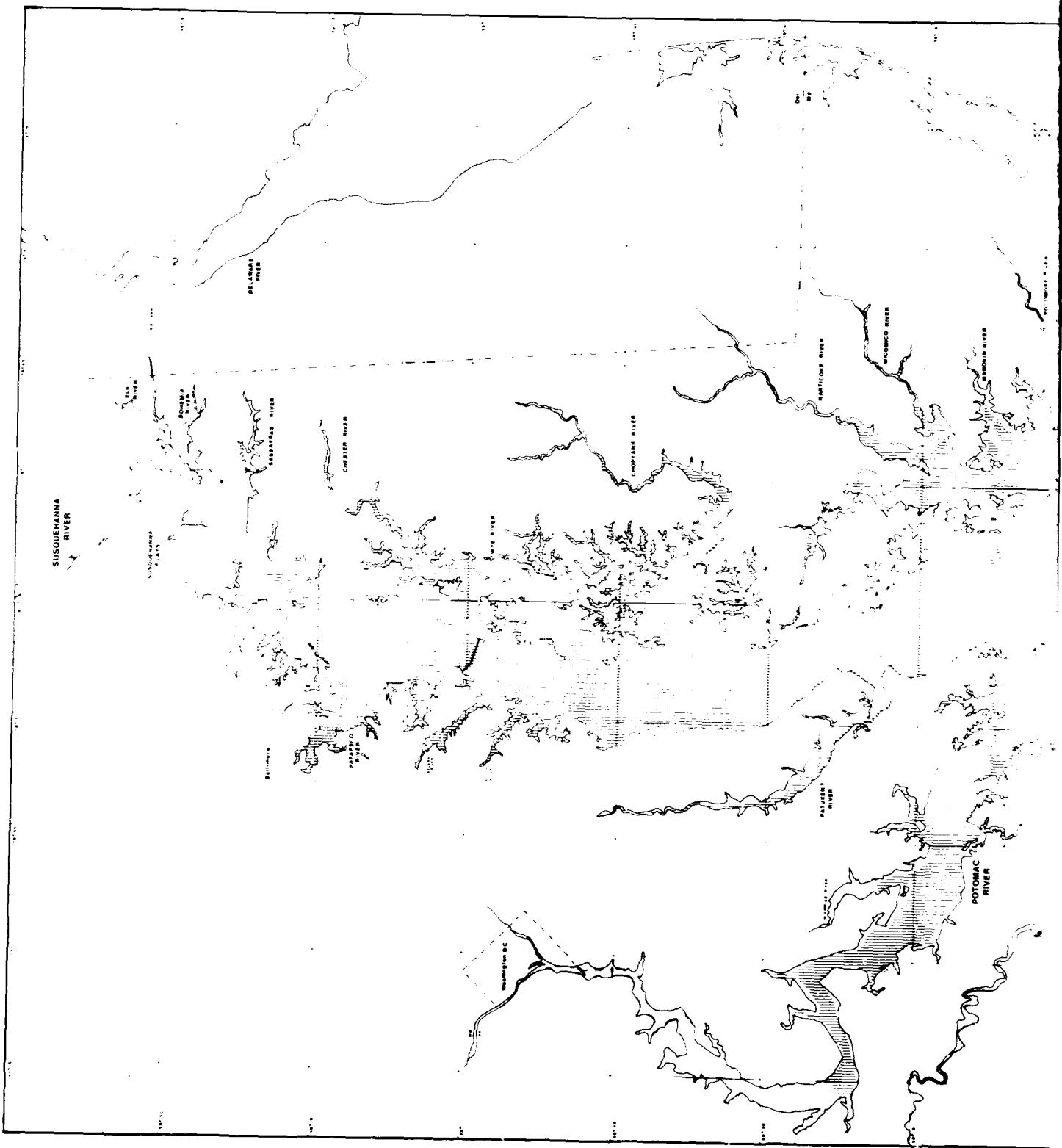
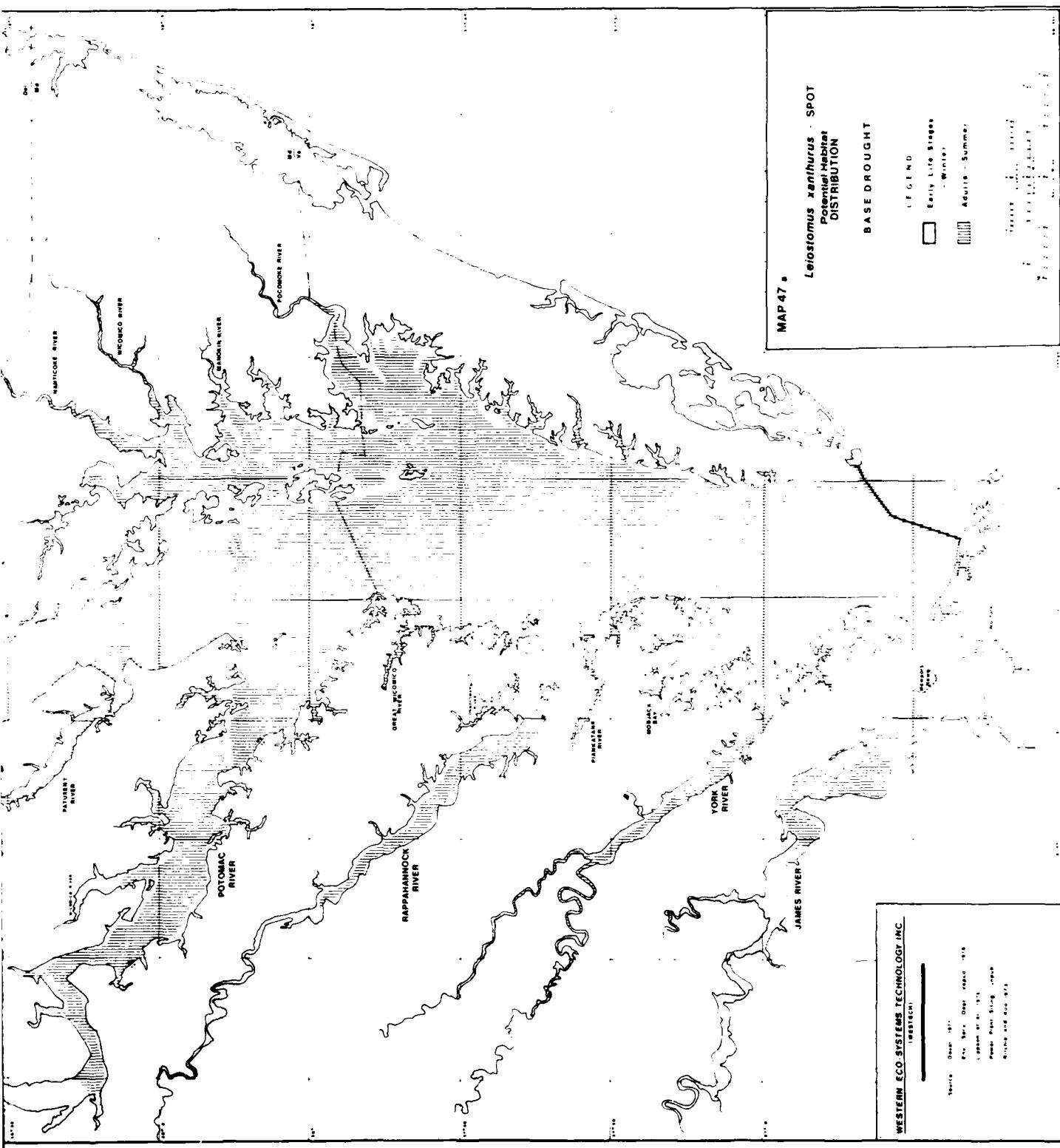
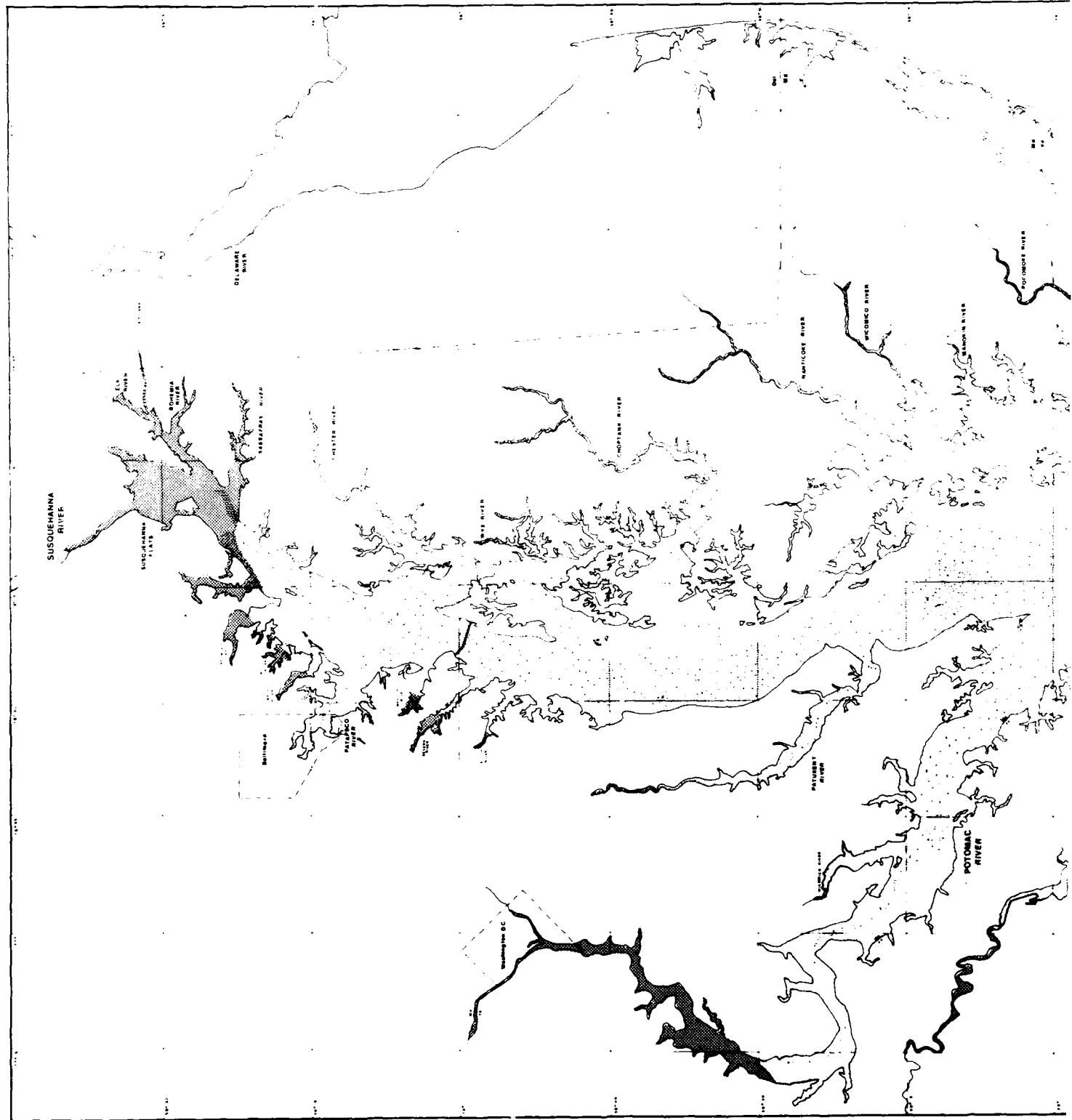
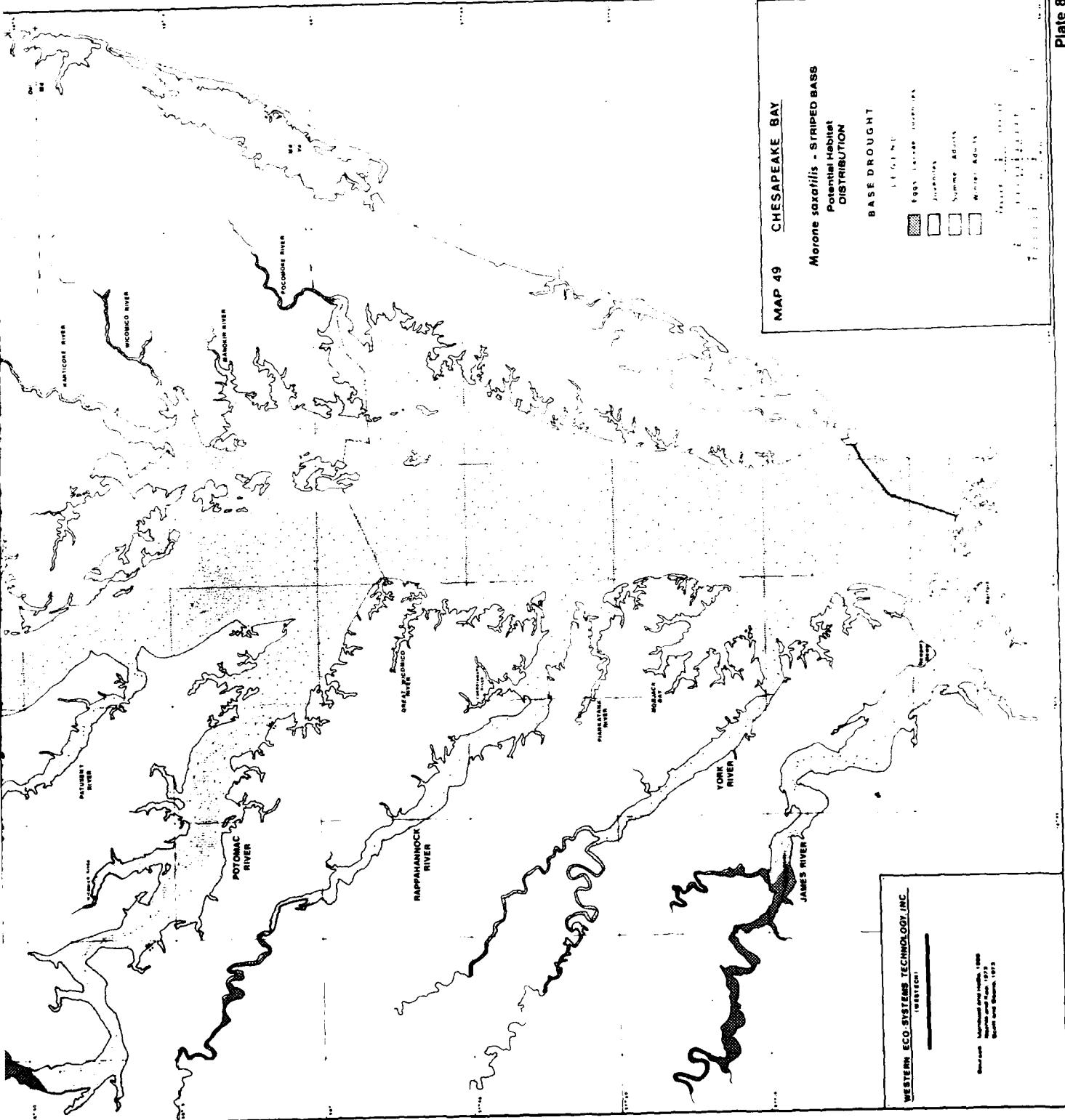


Plate 87









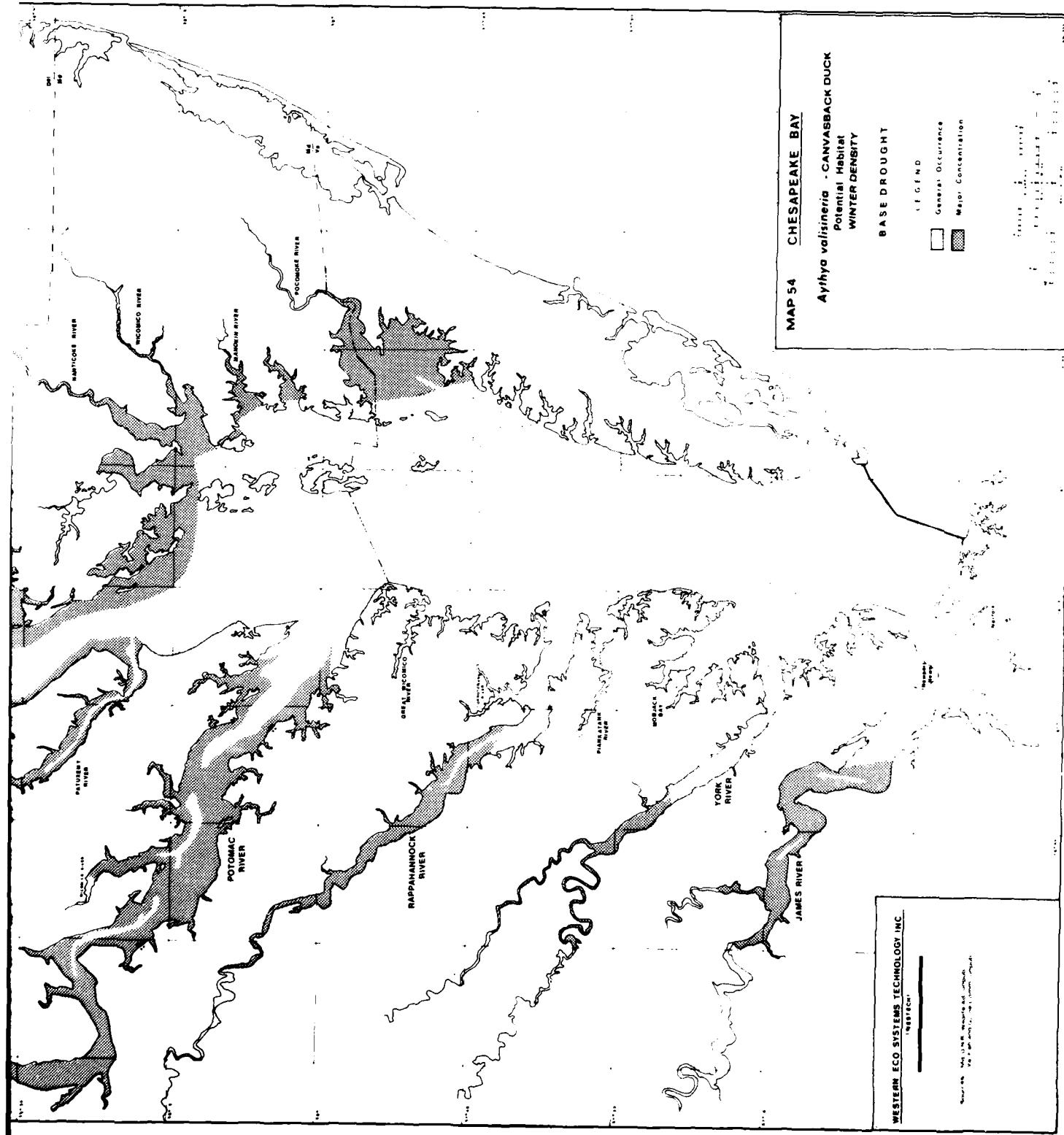
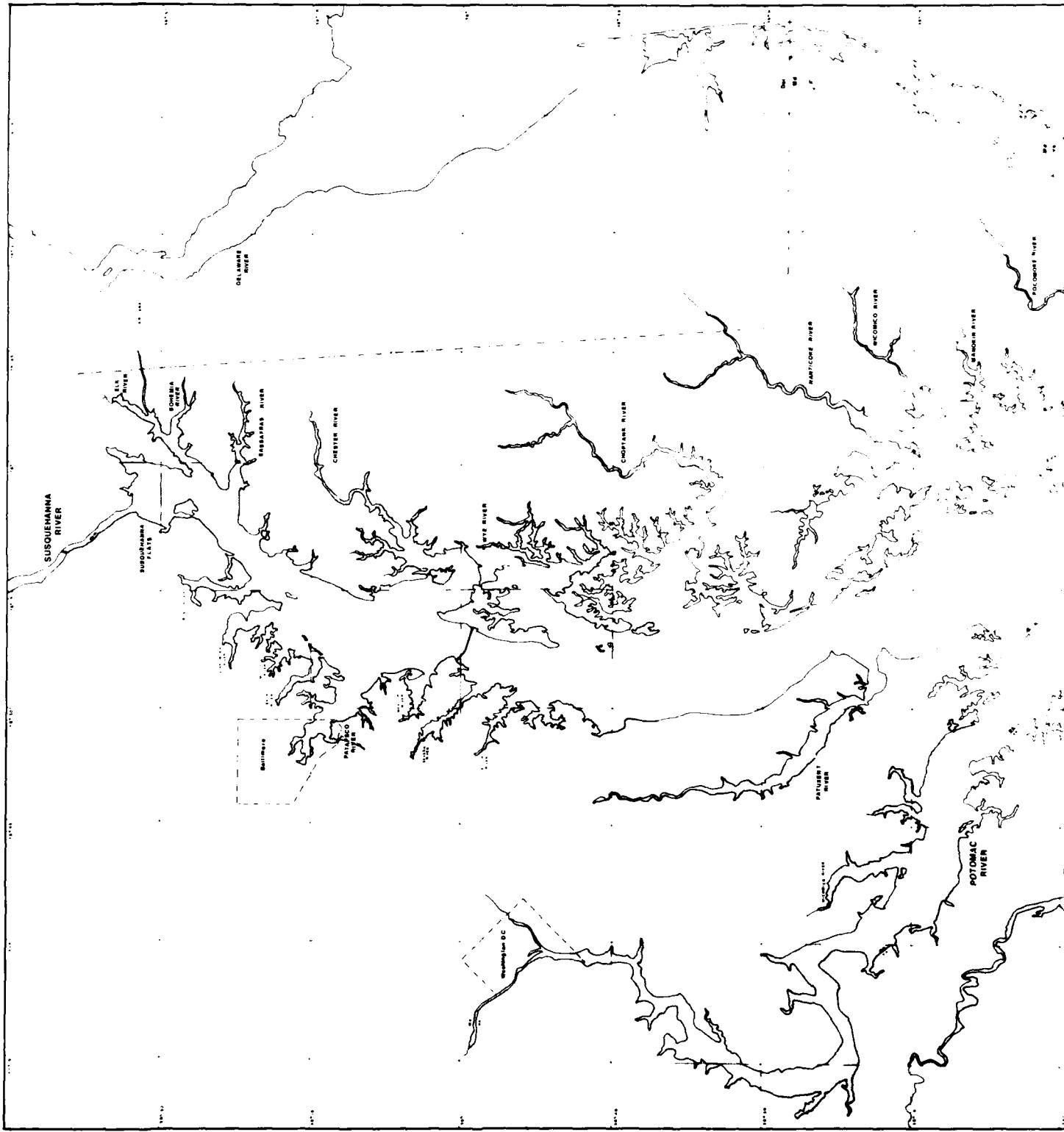
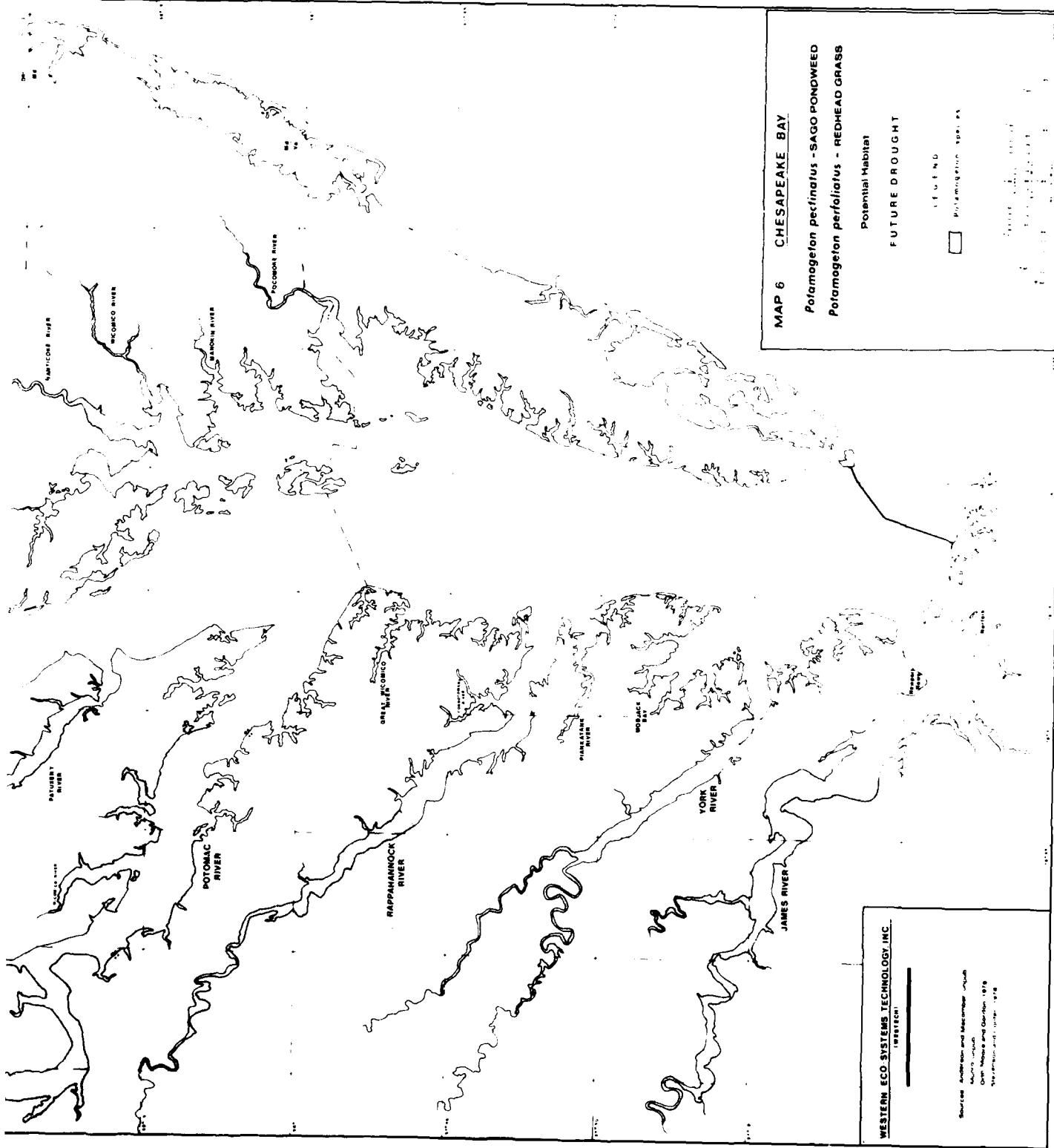


Plate 89

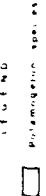




MAP 6 CHESSAPEAKE BAY
*Potamogeton pectinatus - SAGO PONDWEED
 Potamogeton perfoliatus - REDHEAD GRASS*

Potential Habitat

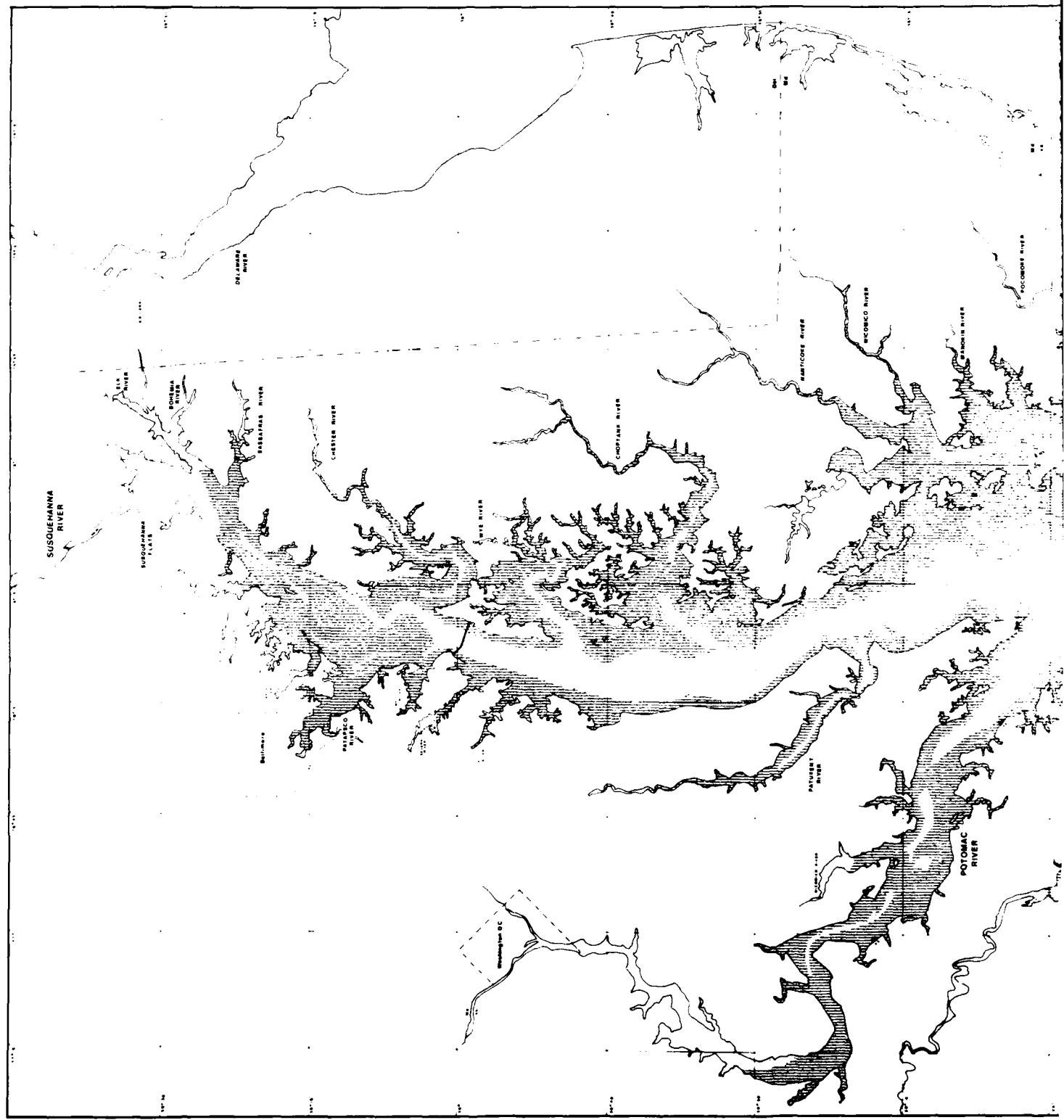
FUTURE DROUGHT

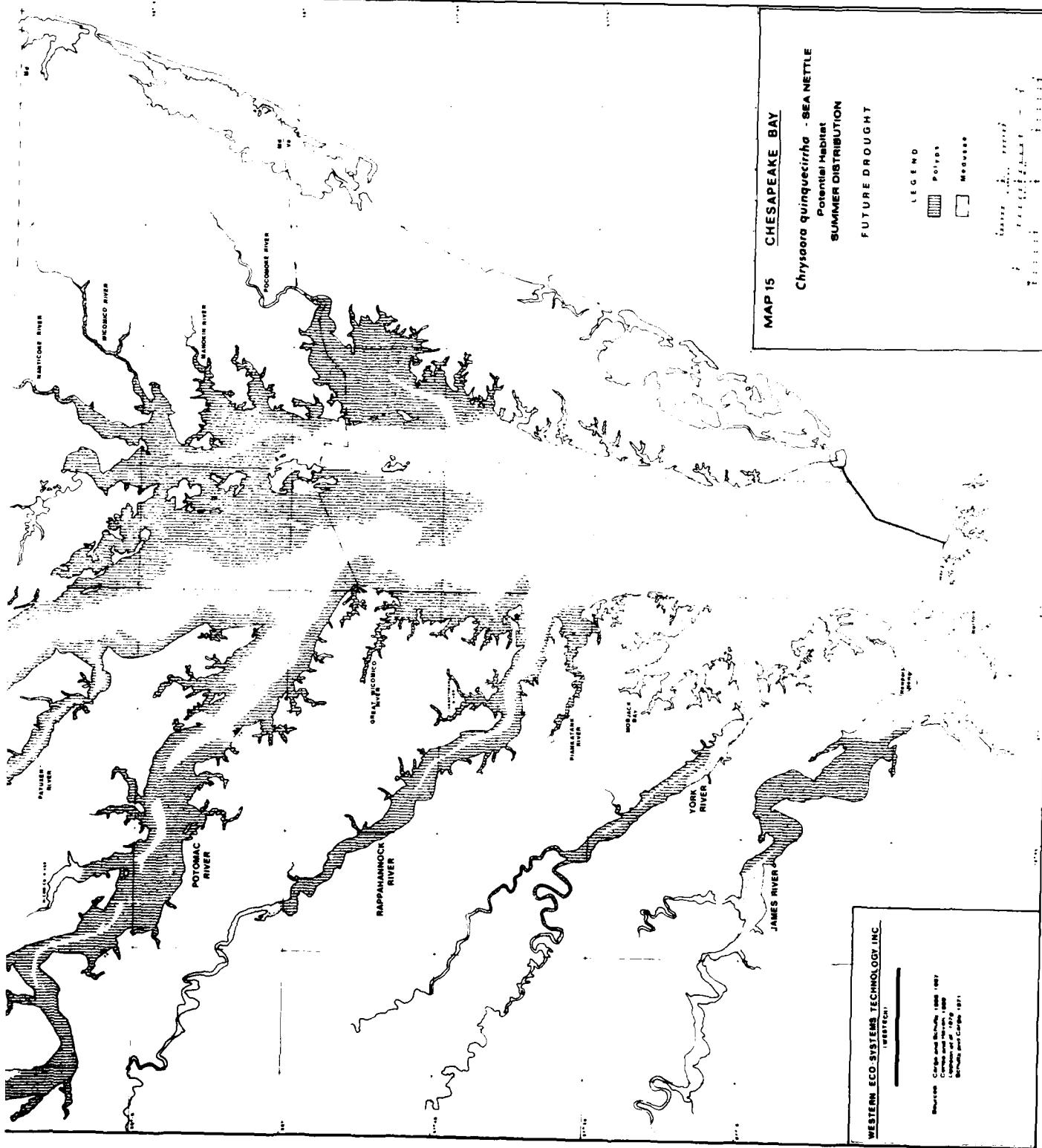


Legend
 Potential Habitat
 Future Drought

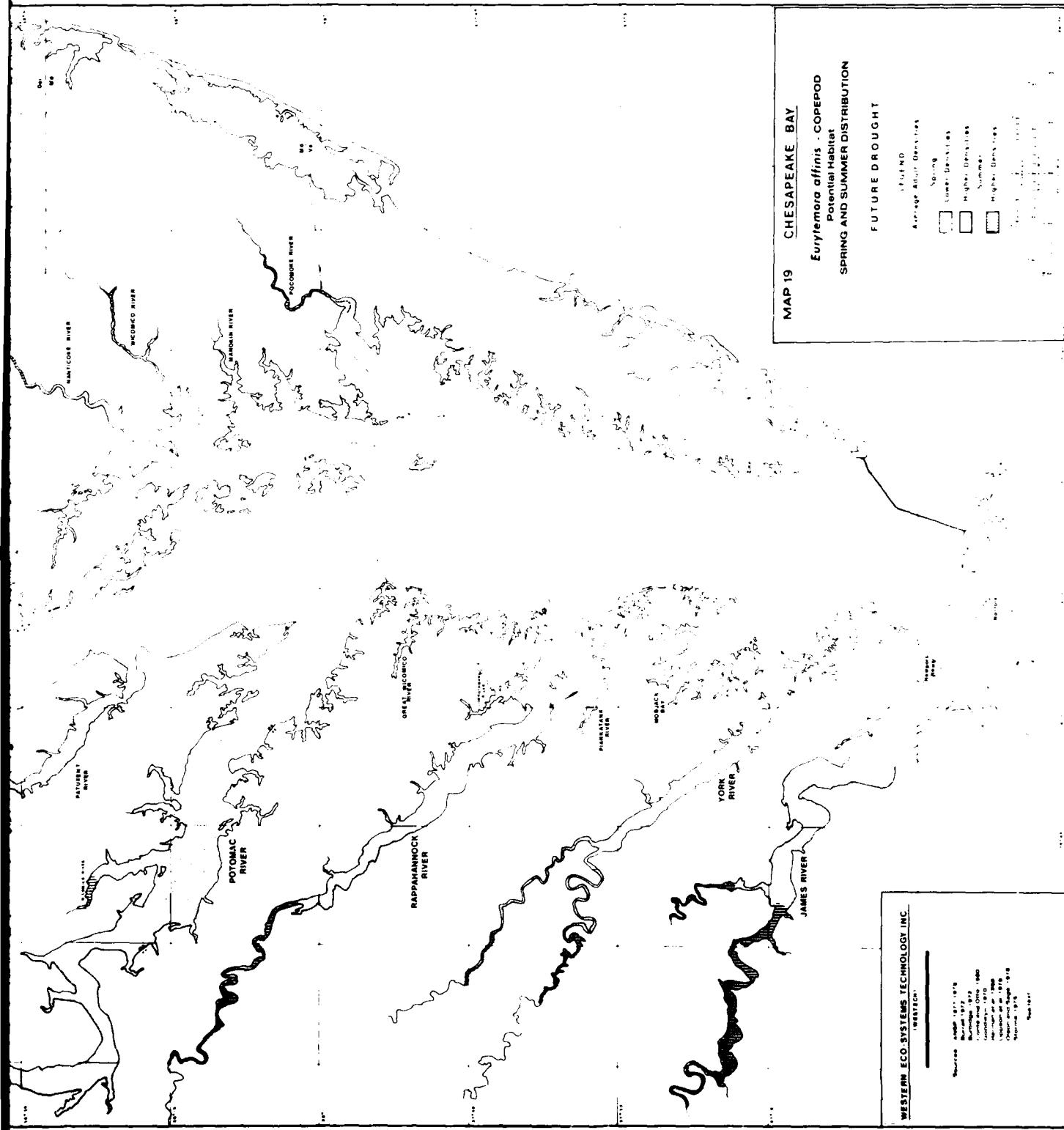
WESTERN ECO-SYSTEMS TECHNOLOGY, INC.
 WESTECH

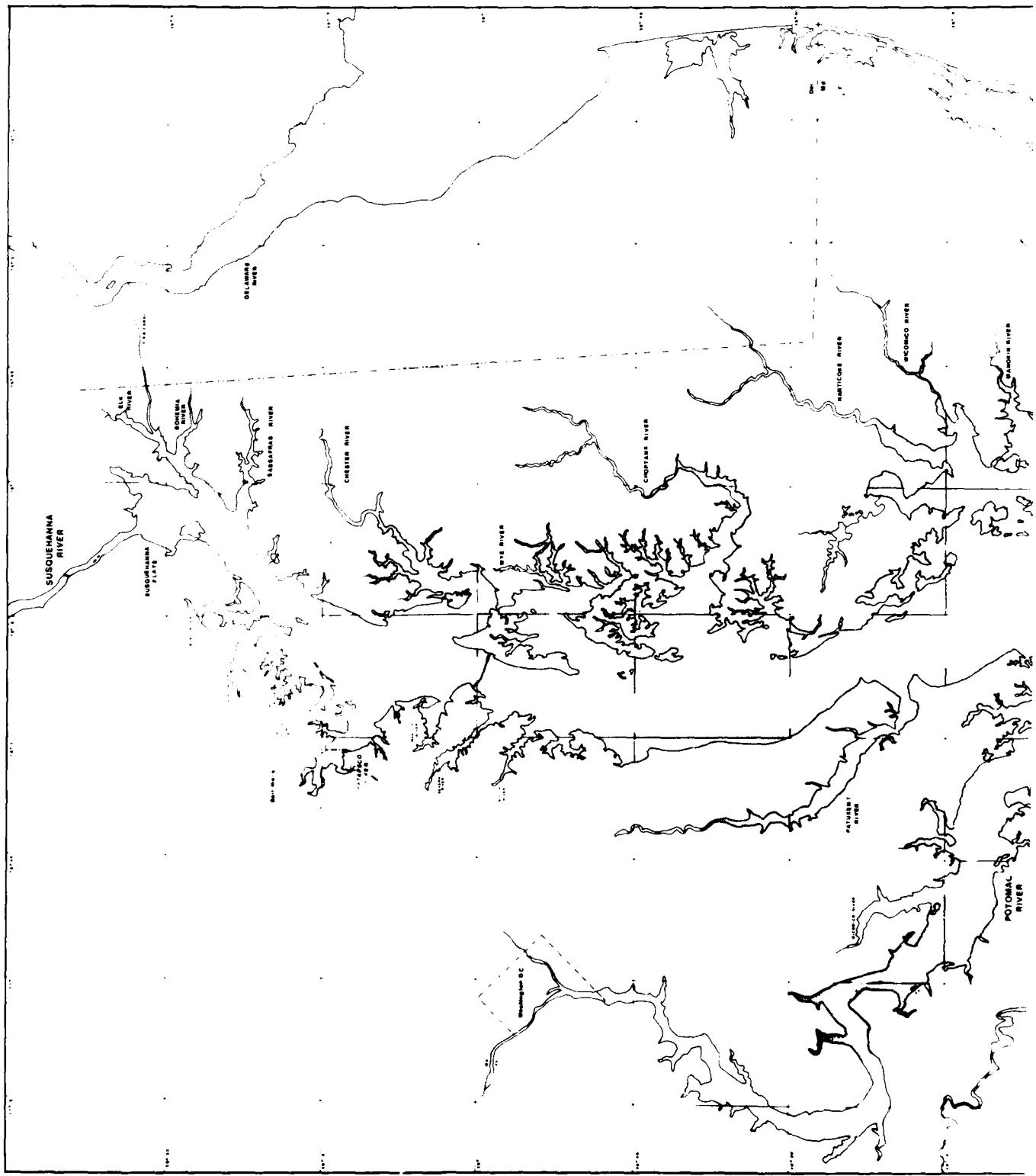
Source: Anderson and MacIntyre, 1980
 Lewis et al., 1989
 Open Water and Caylor, 1979
 Wetzel, 1975











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CHESAPEAKE BAY LOW FRESHWATER INFLOW STUDY PHASE II

BIOOTA ASSESSMENT MAP..(U) WESTERN ECO-SYSTEMS

TECHNOLOGY INC BOTHELL WA G B MACKIERNAN ET AL. MAY 82

UNCLASSIFIED

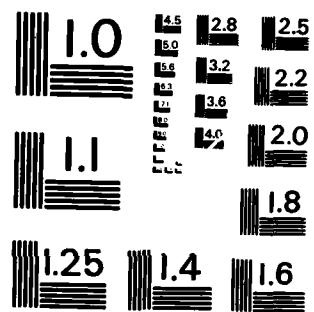
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F/G 6/6

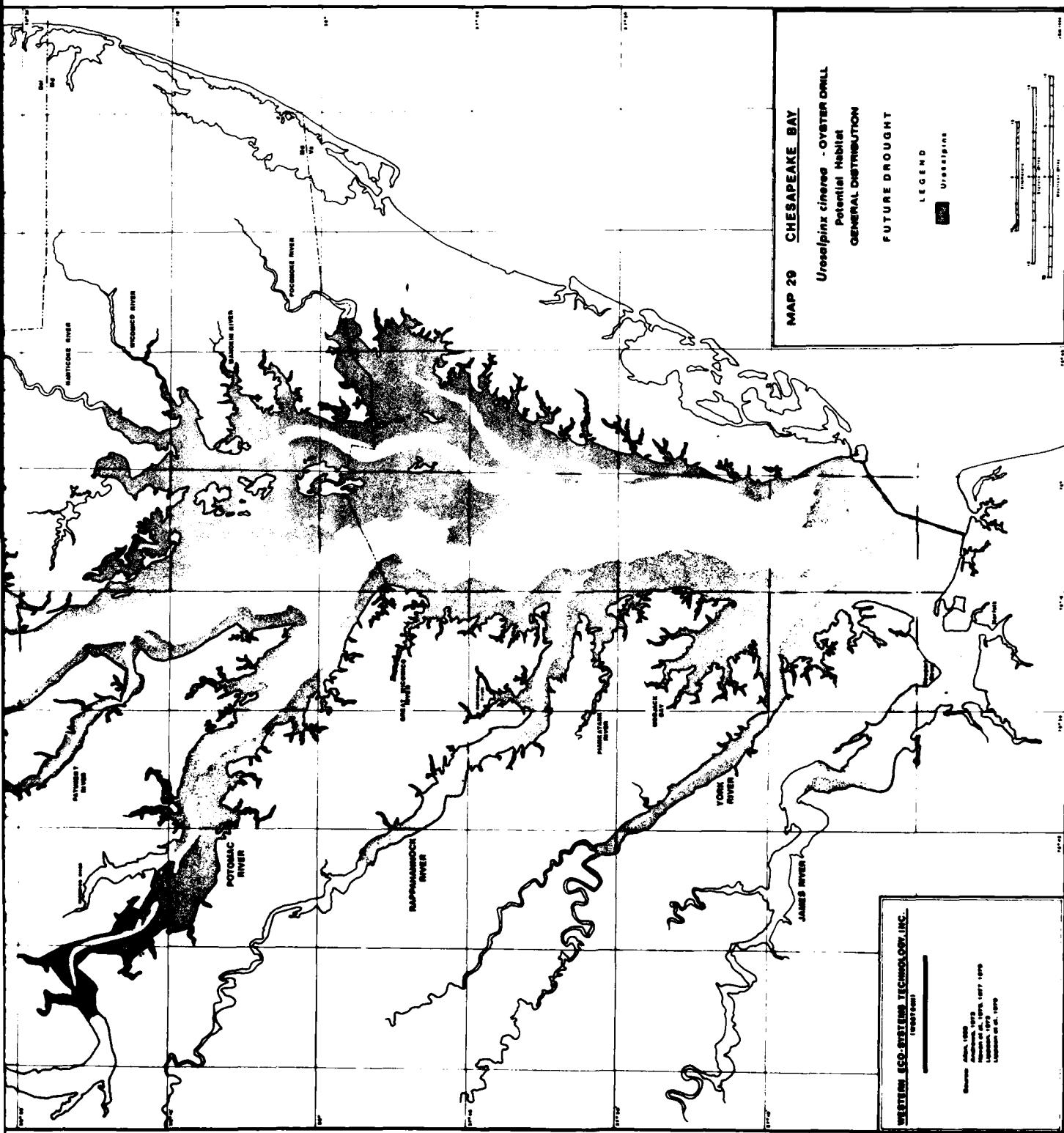
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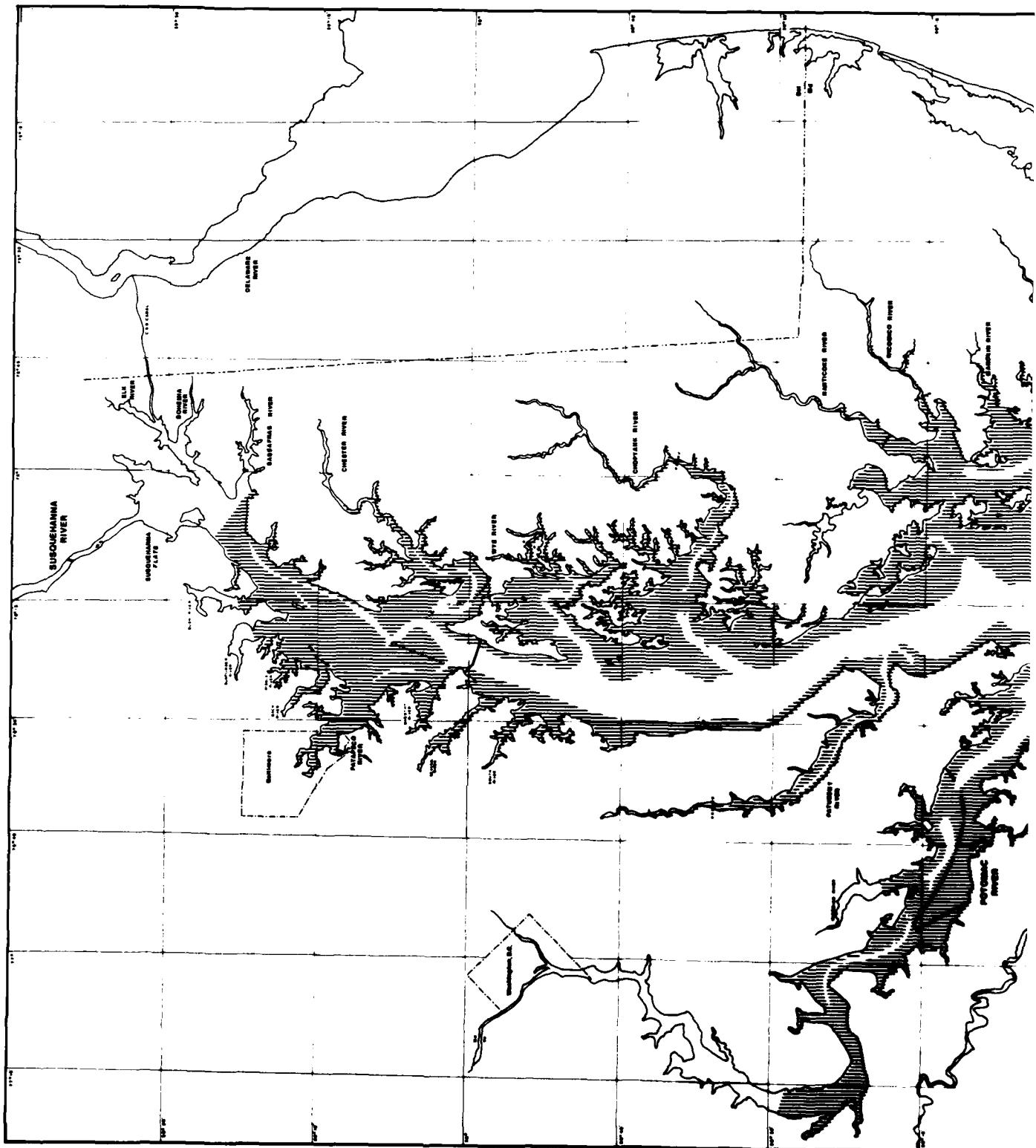
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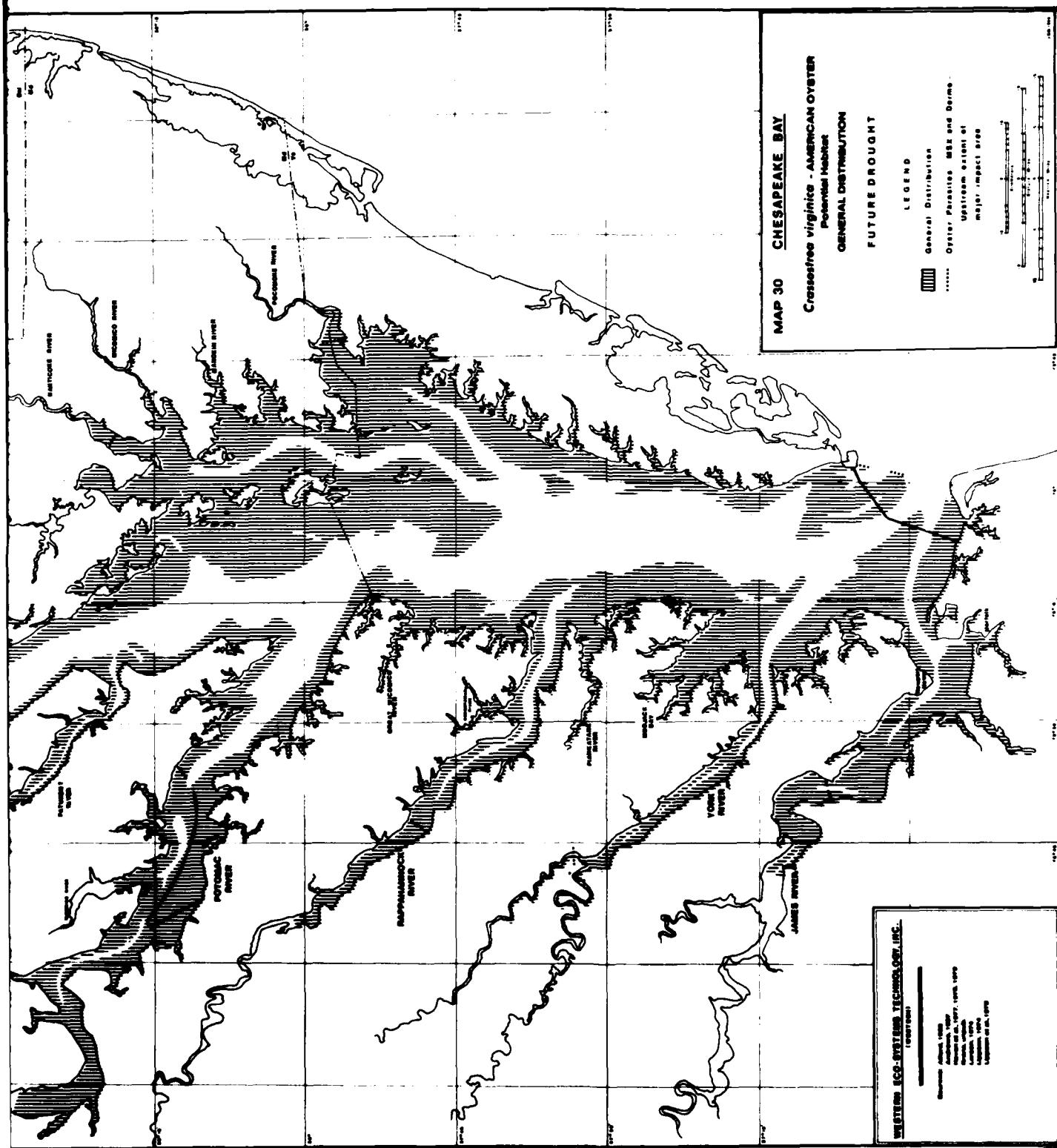
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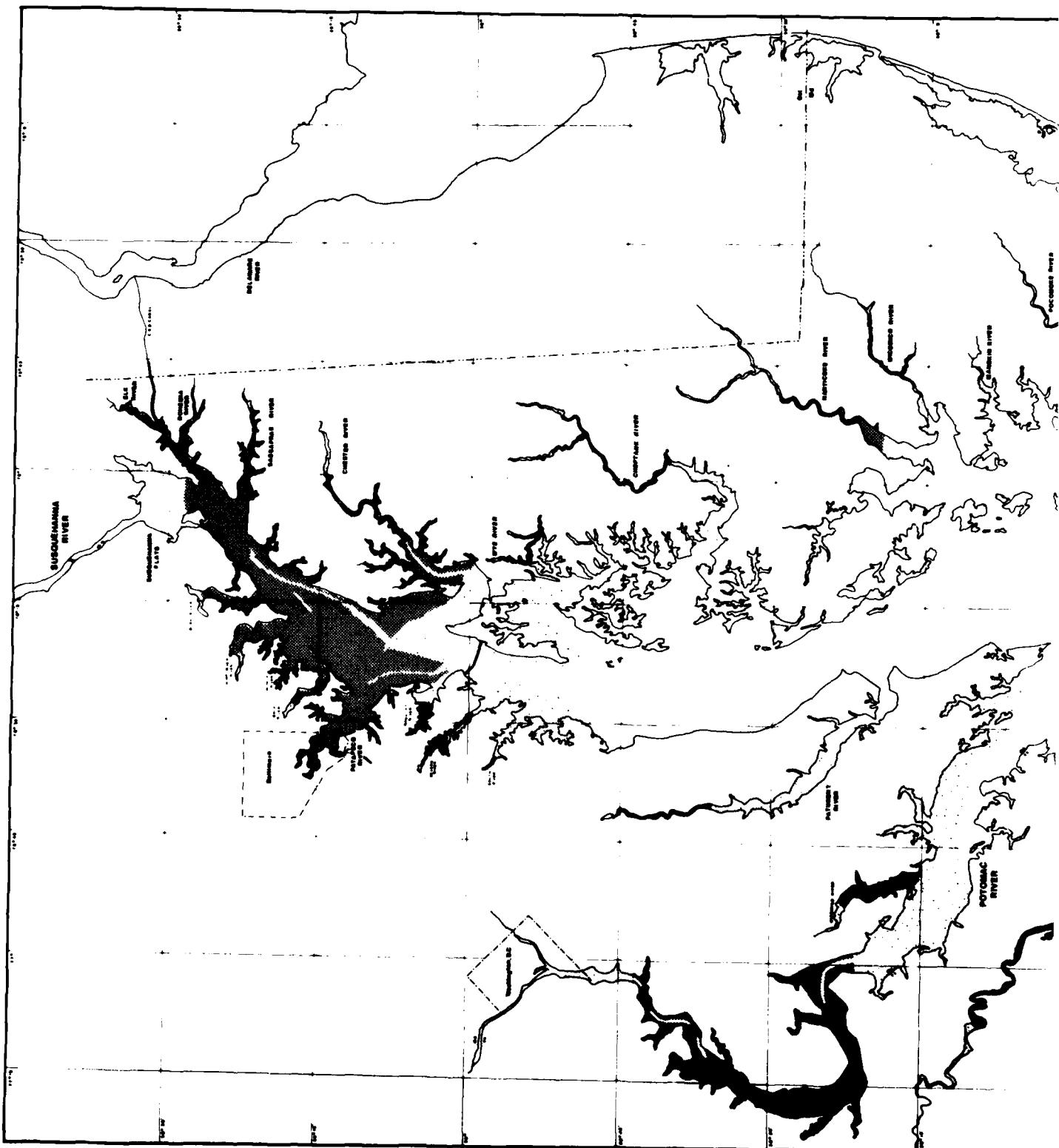


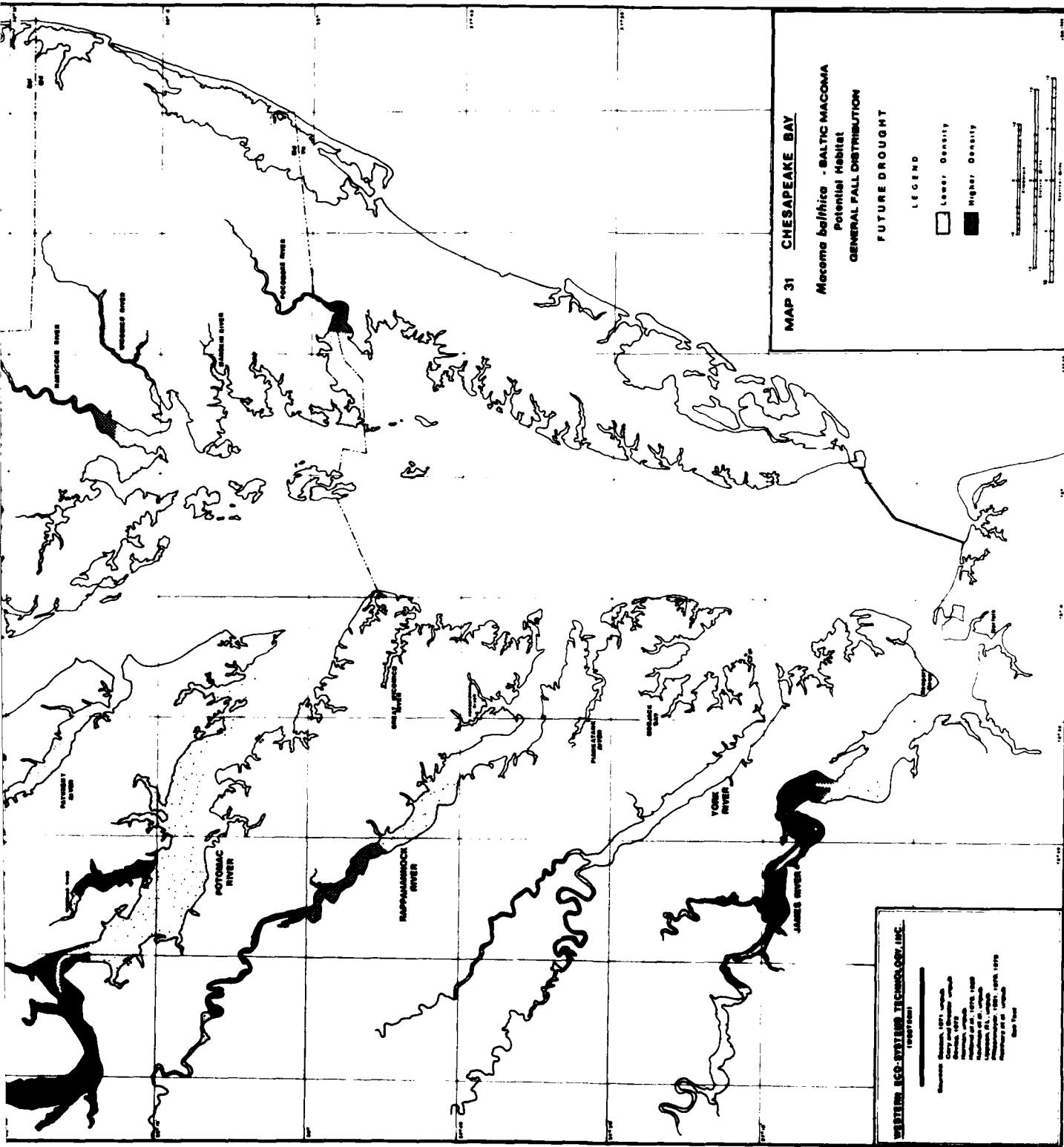
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS - 1963 - A



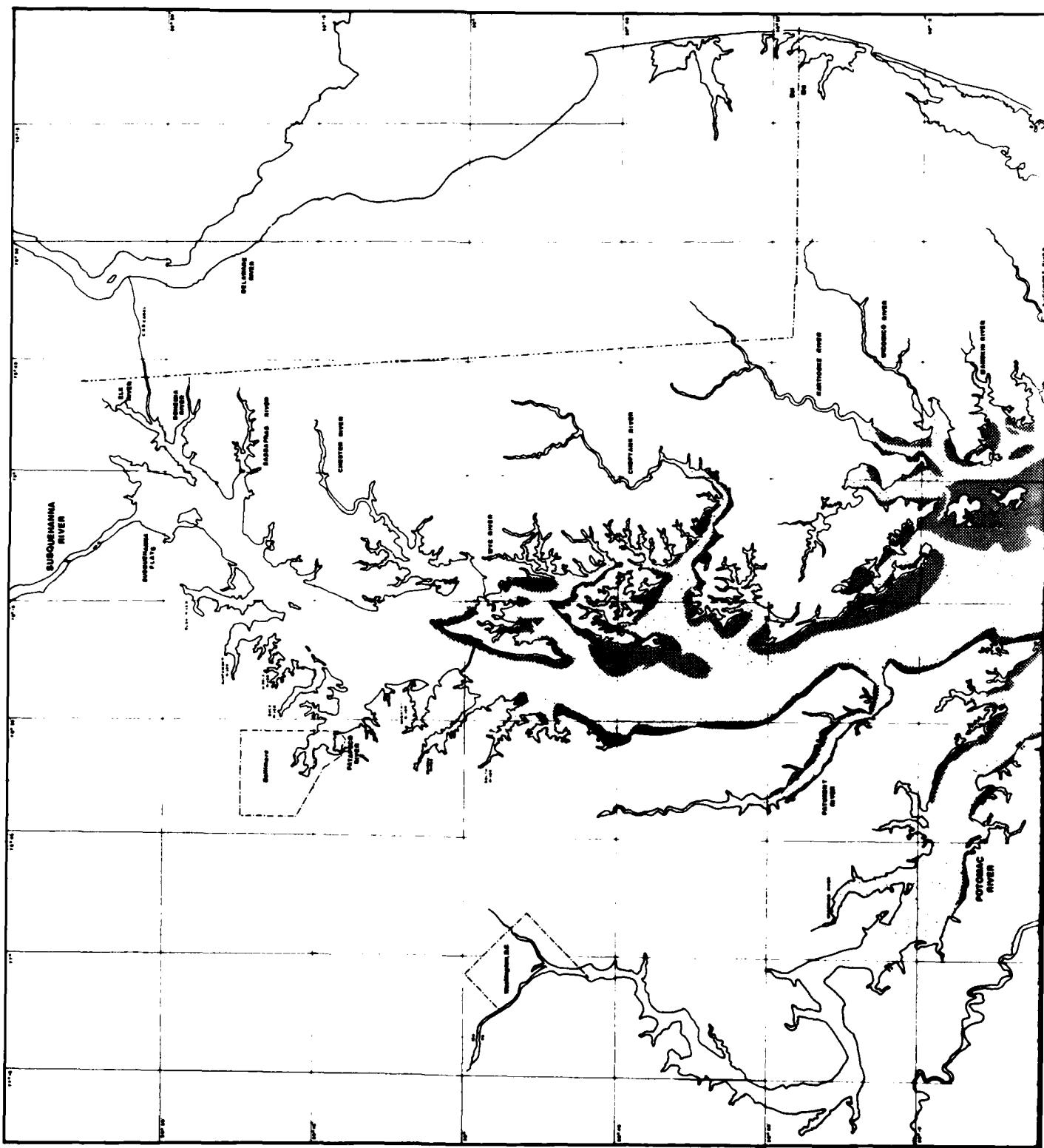


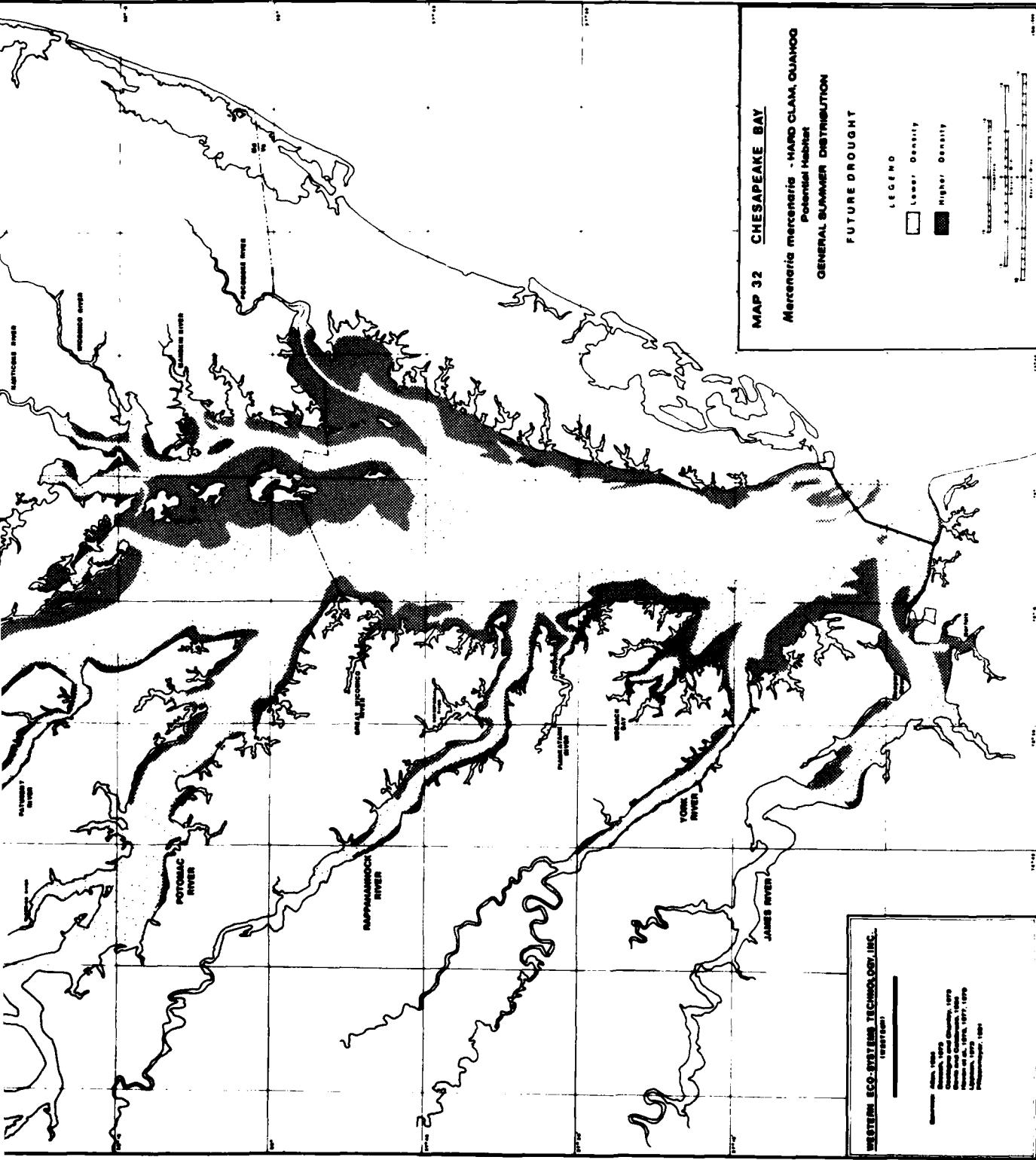






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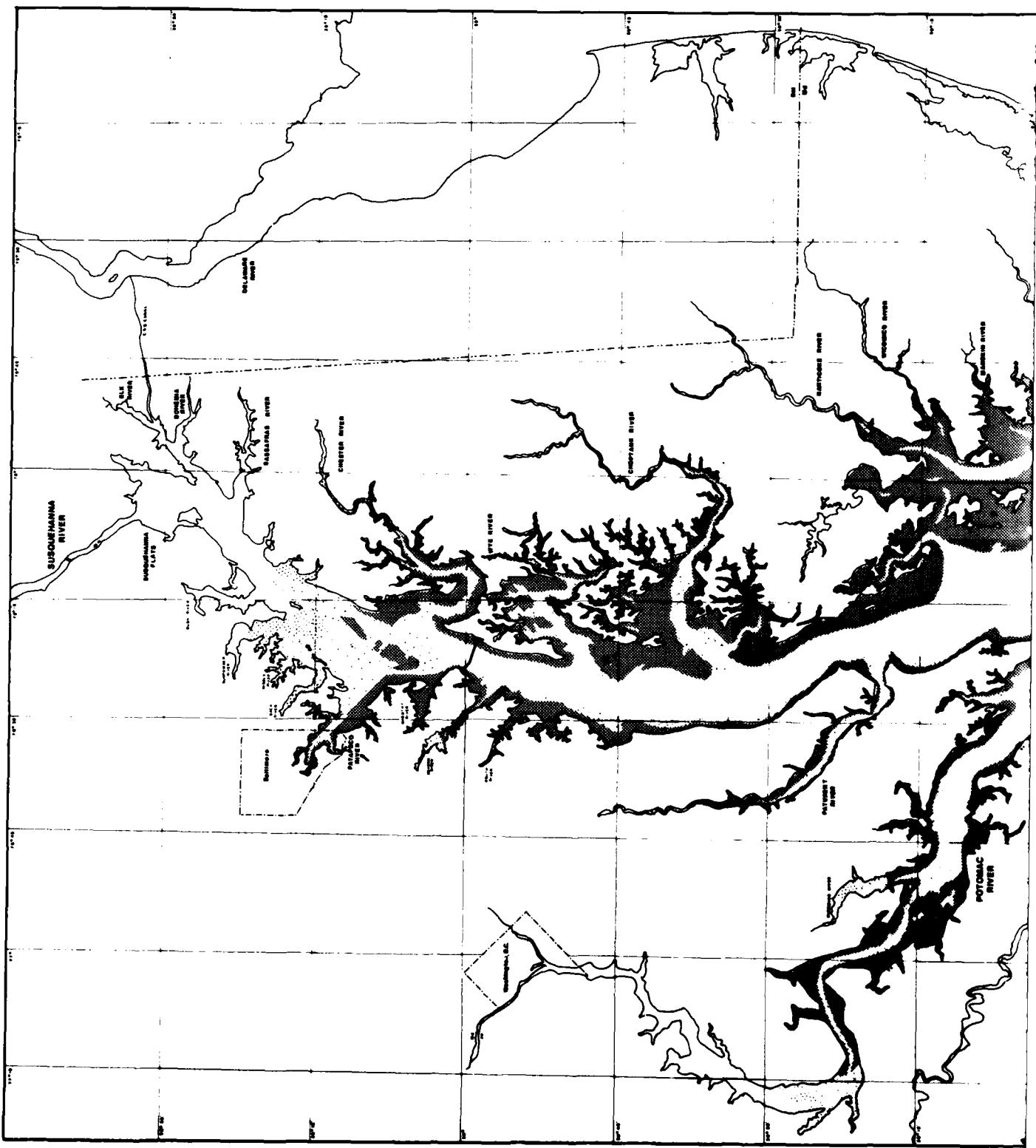
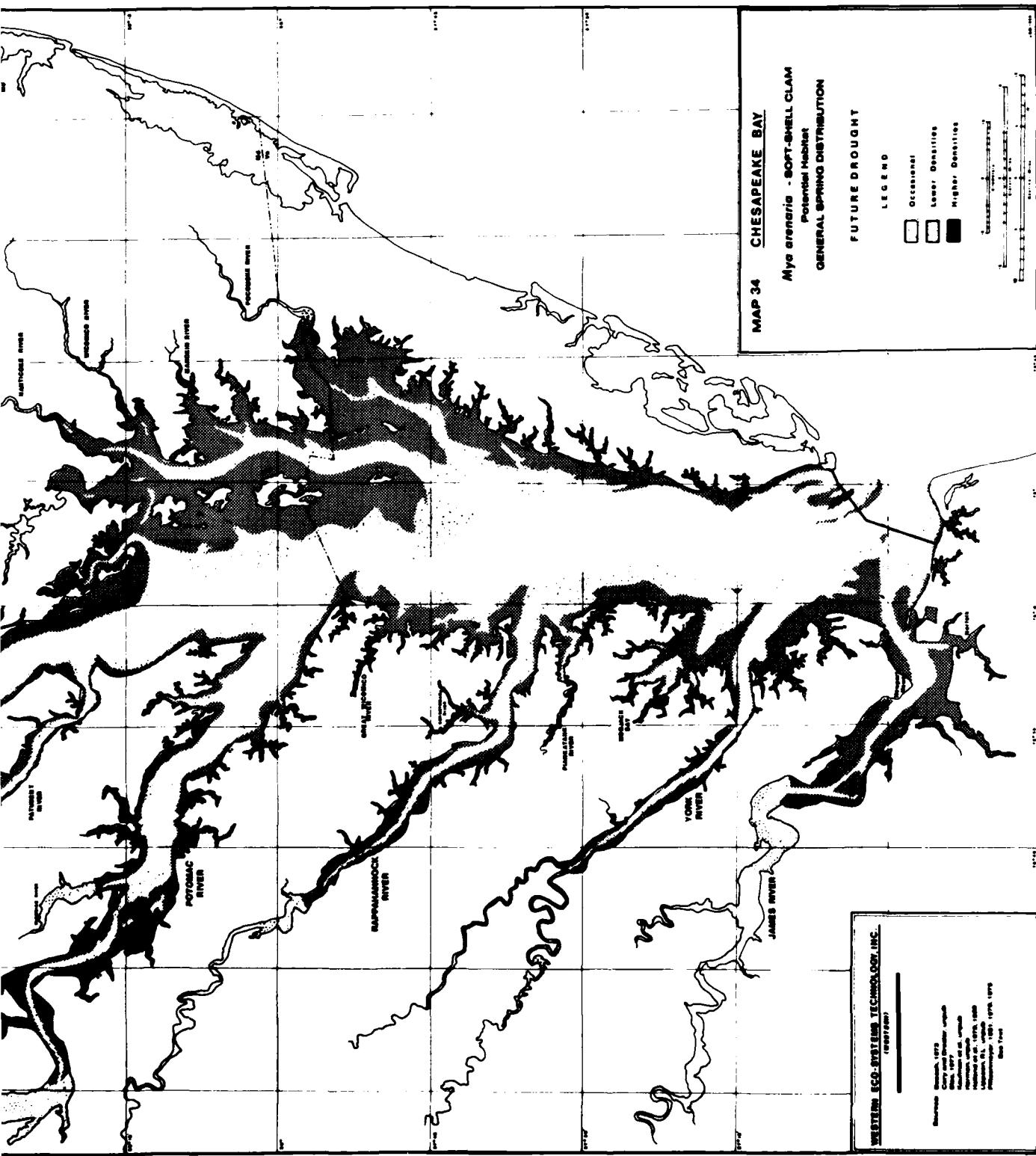
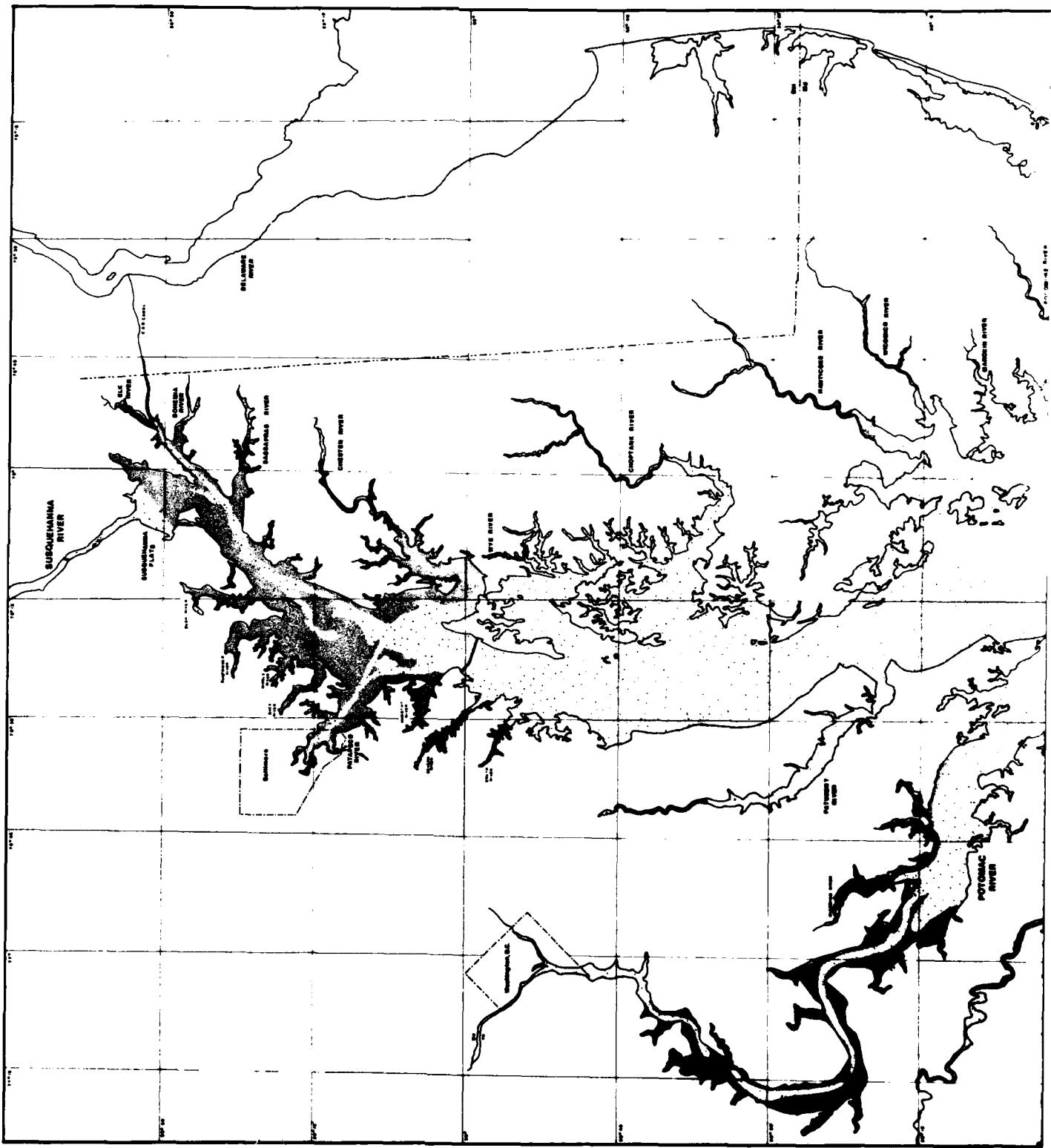
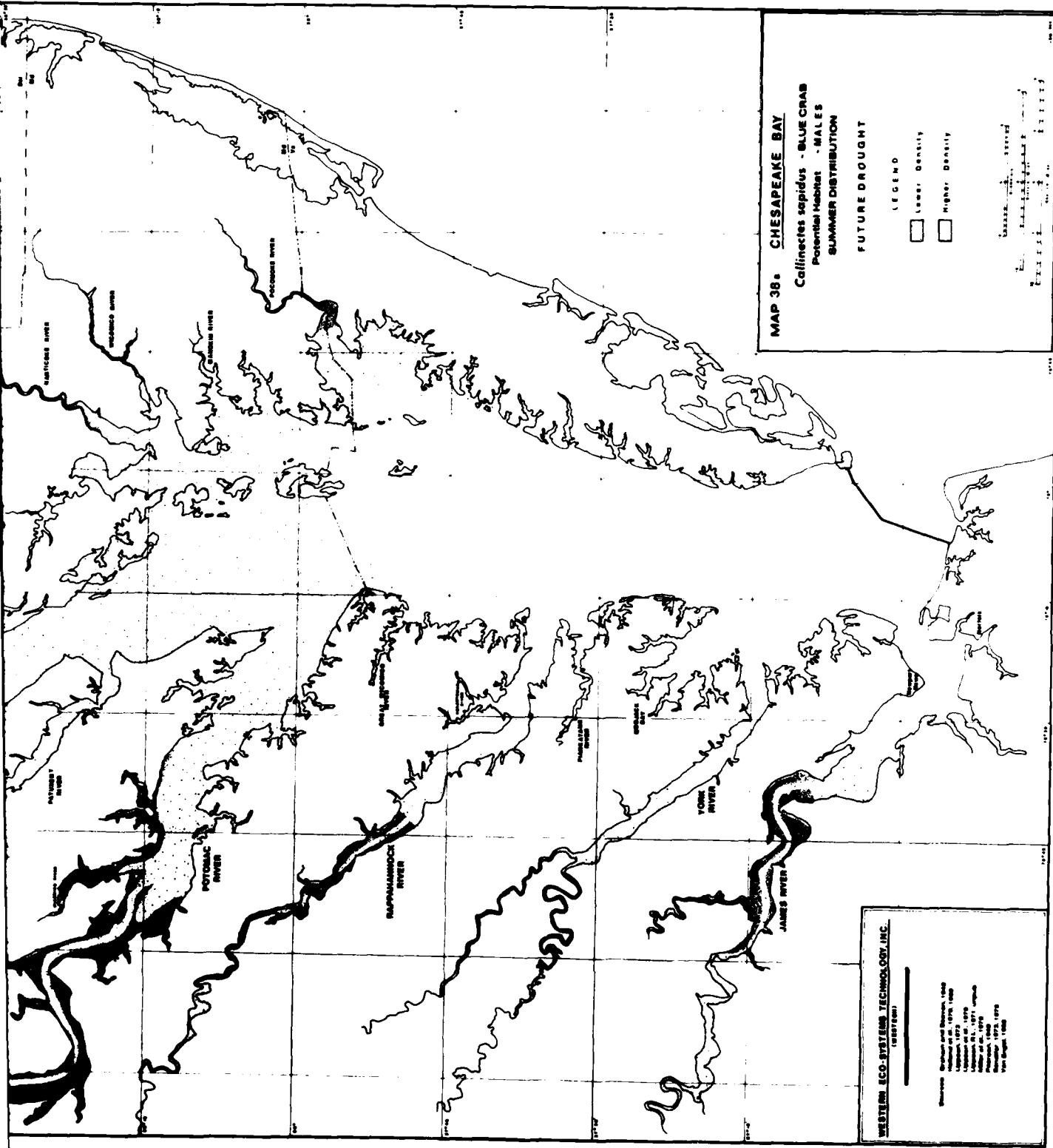
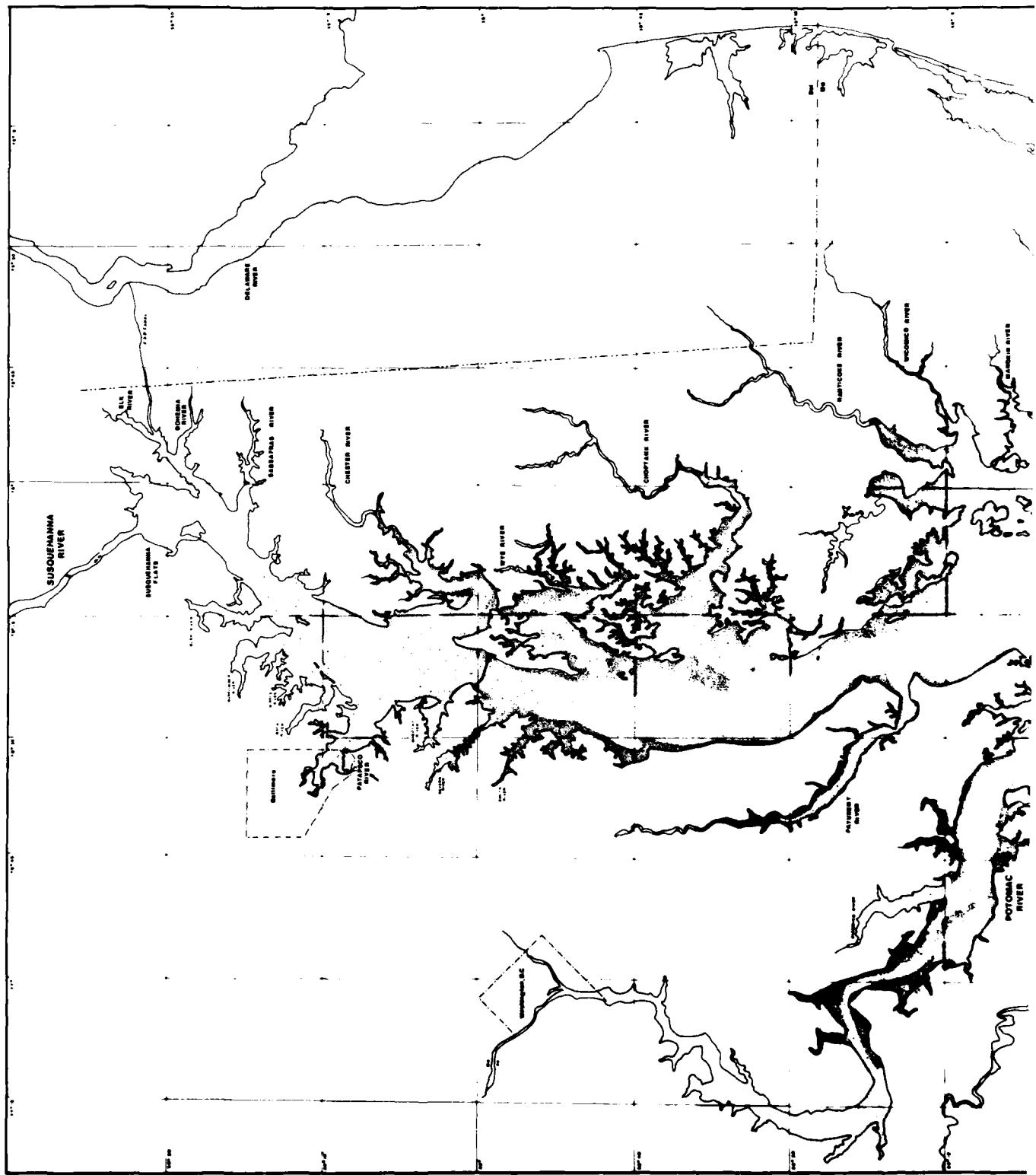


Plate 97









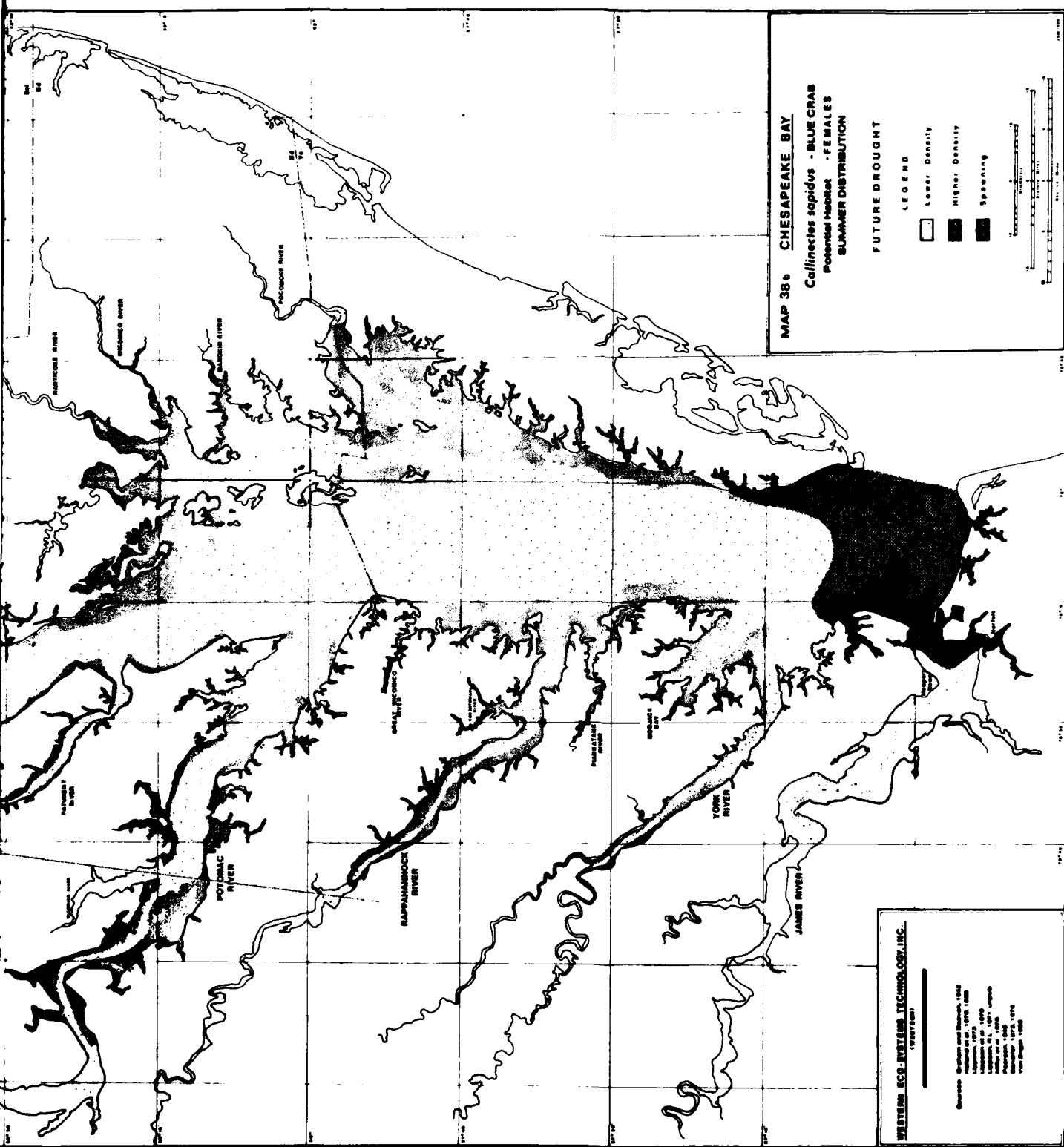
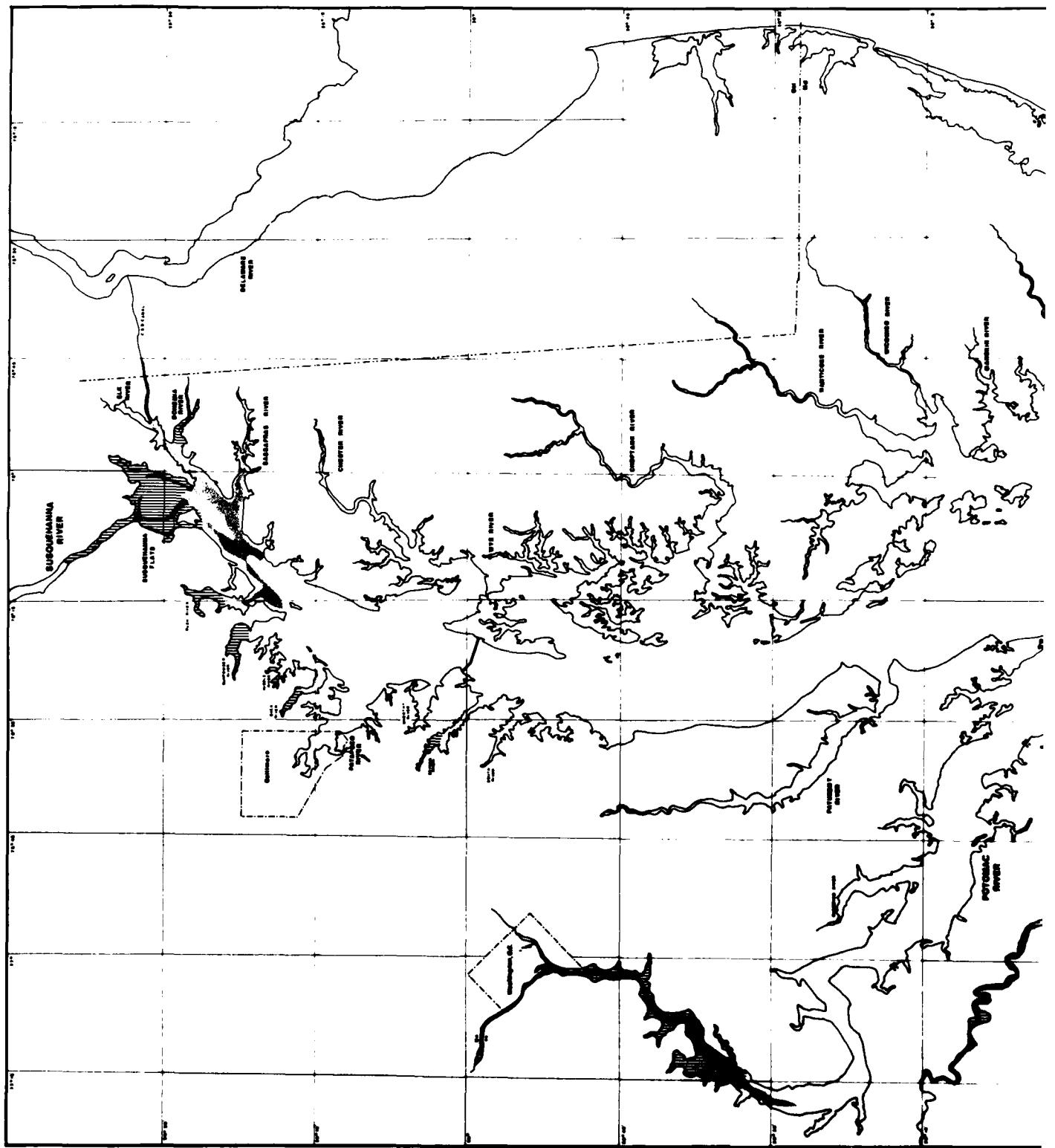
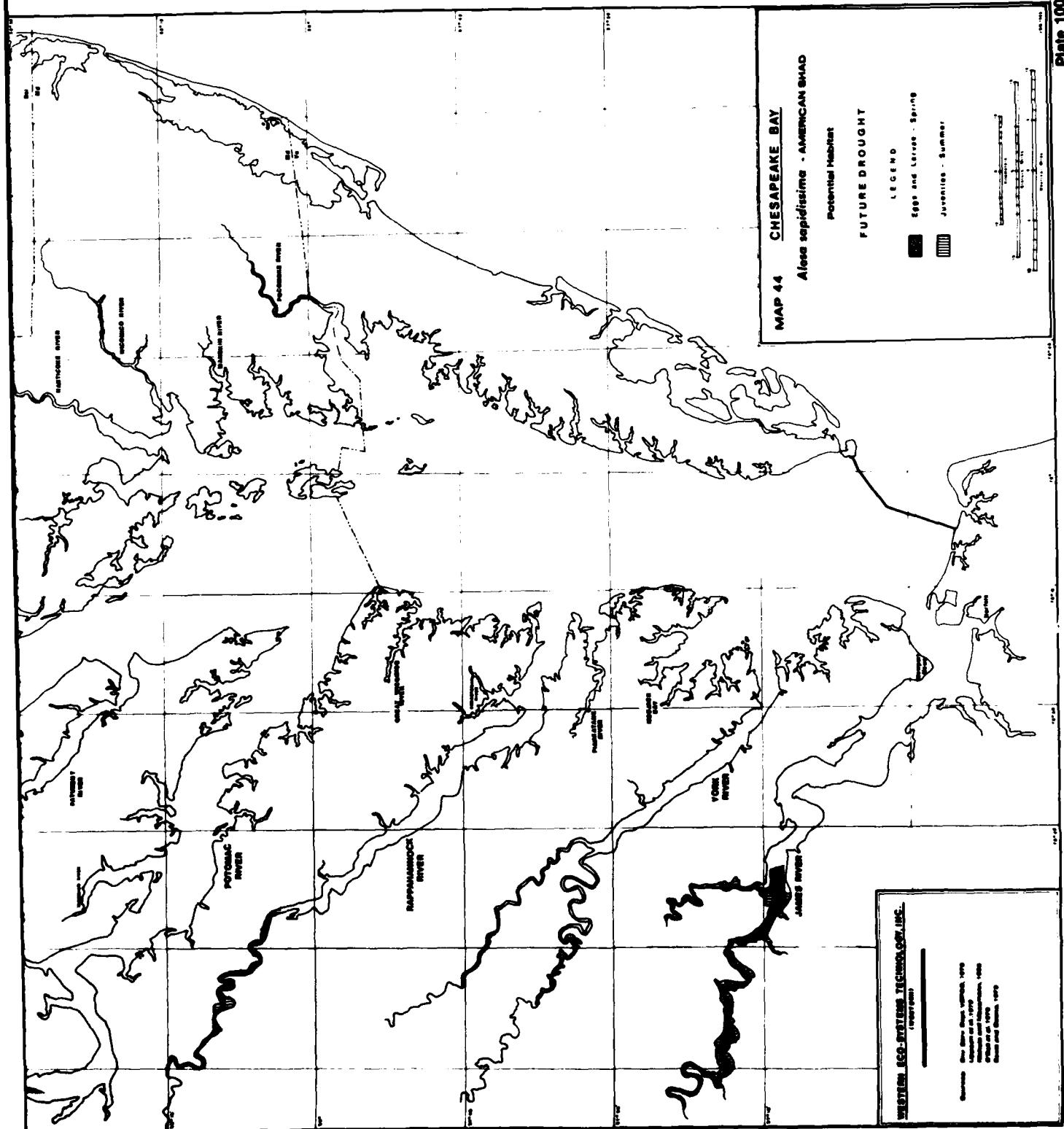
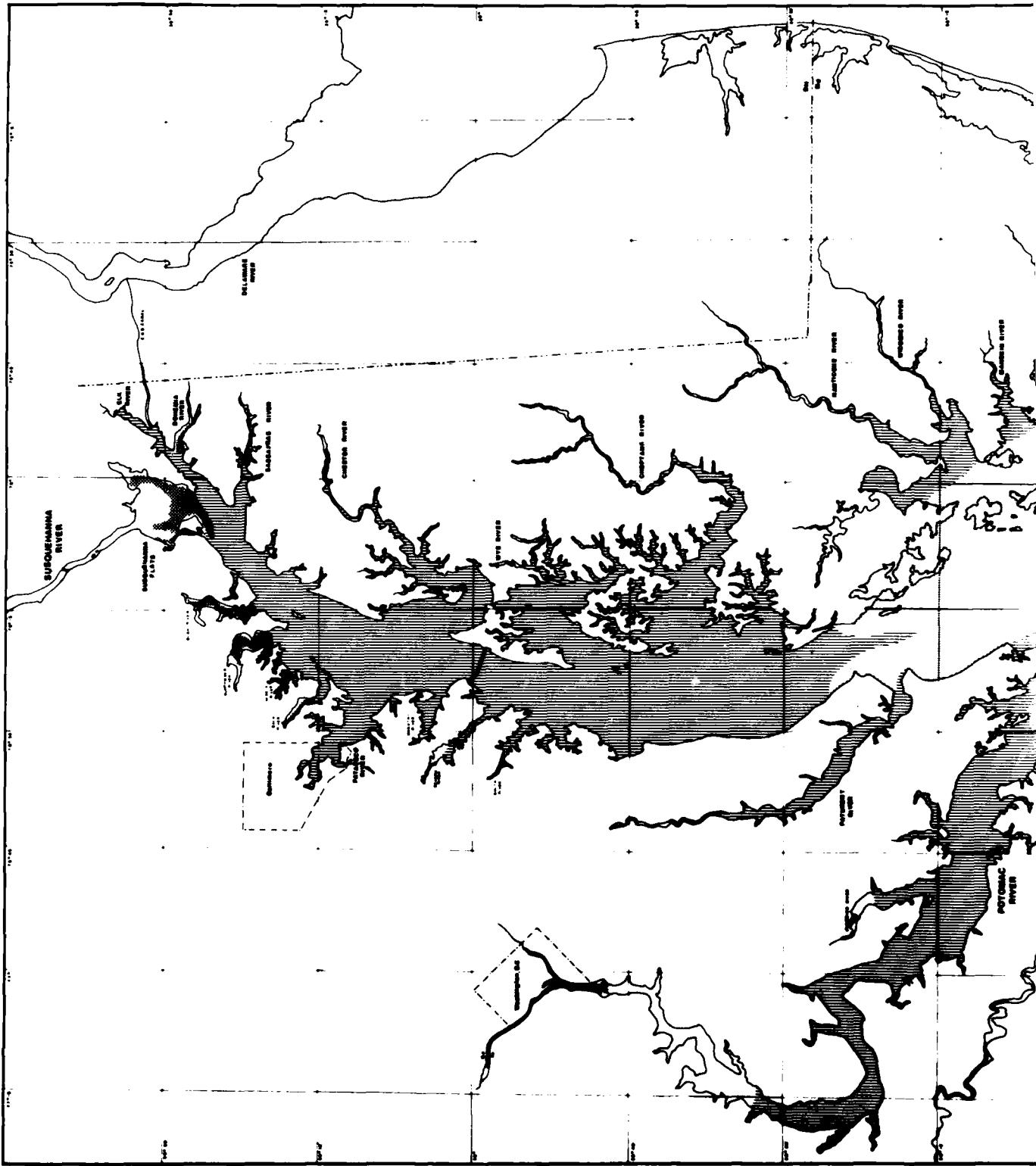
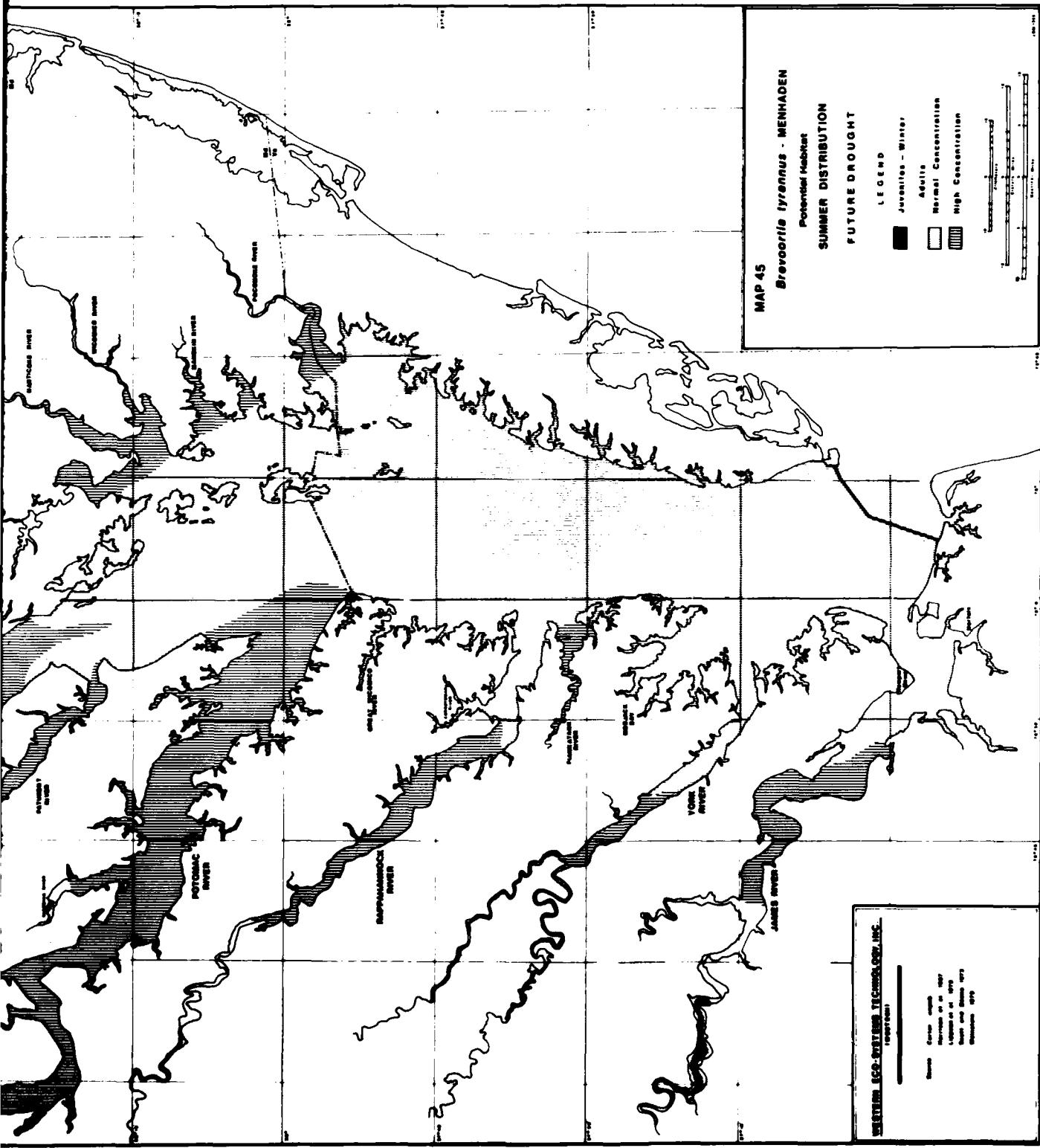


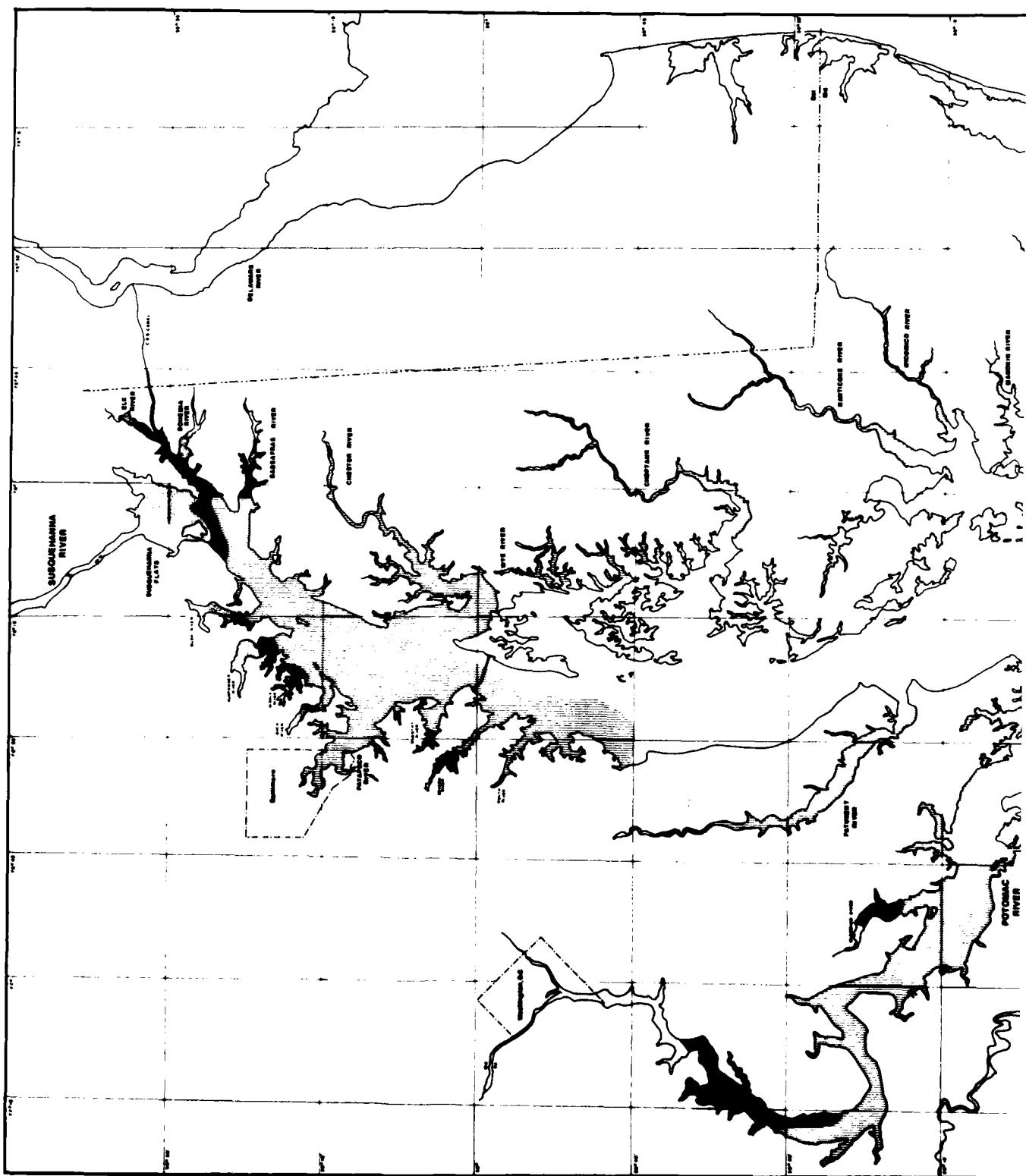
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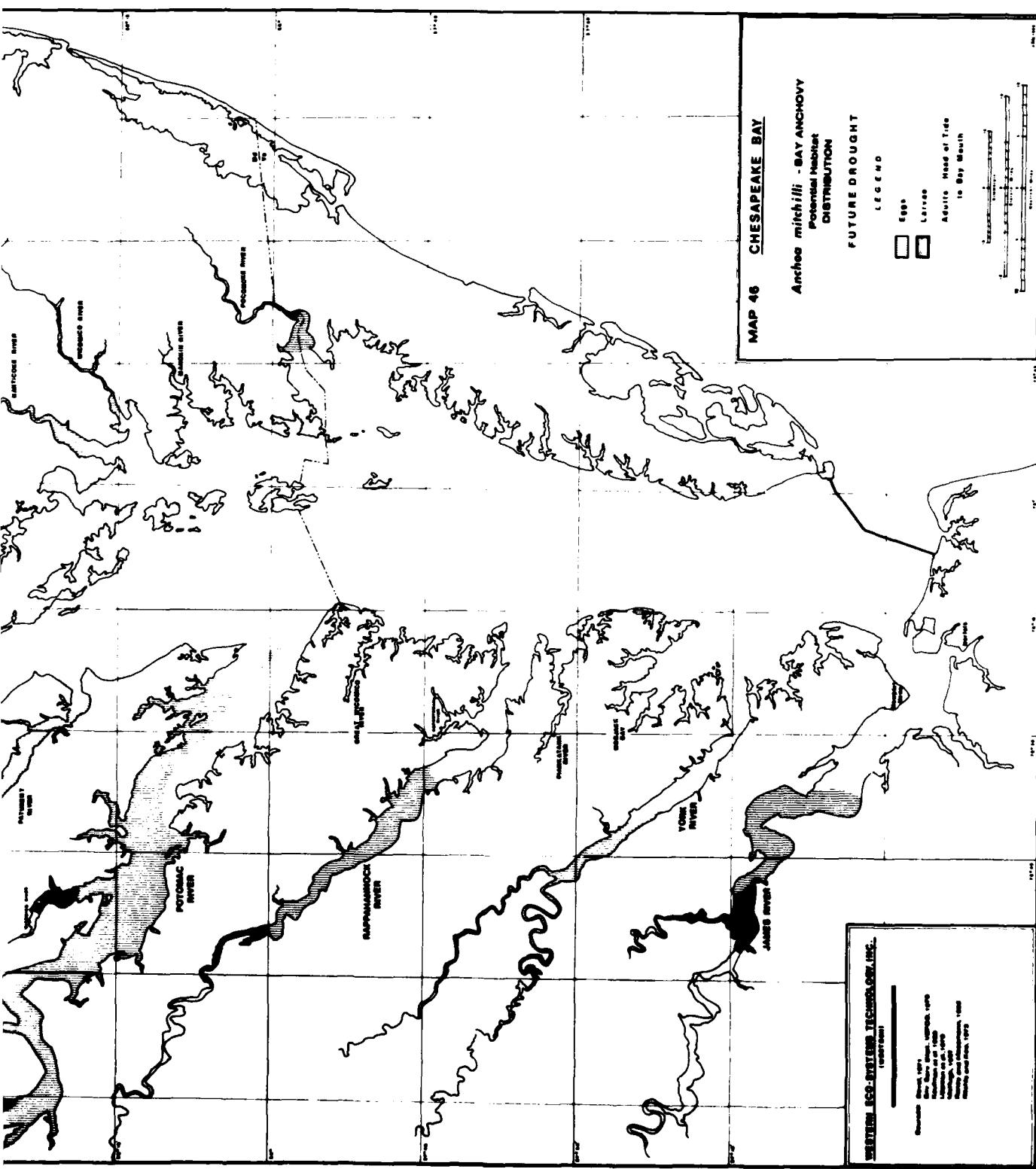


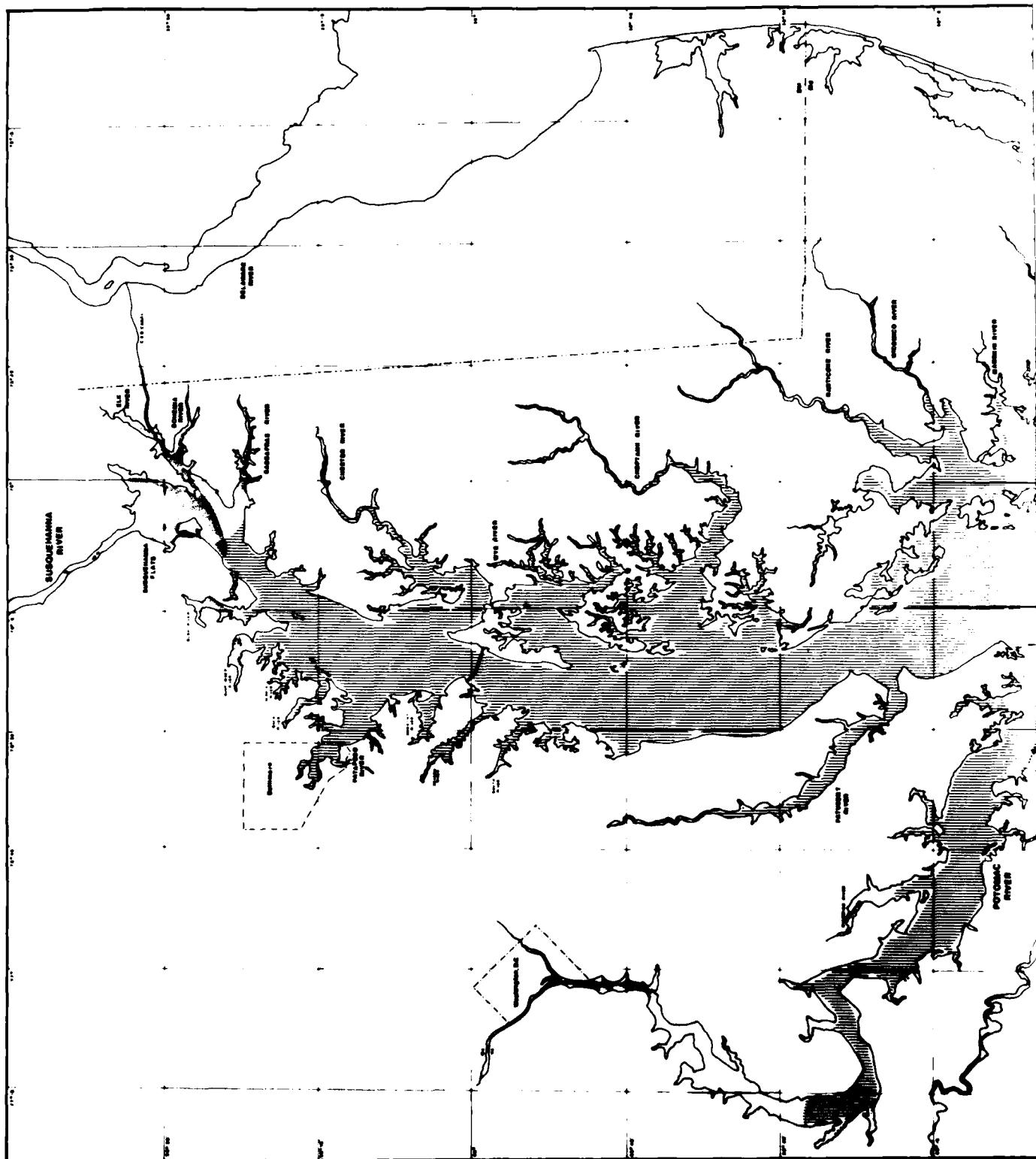


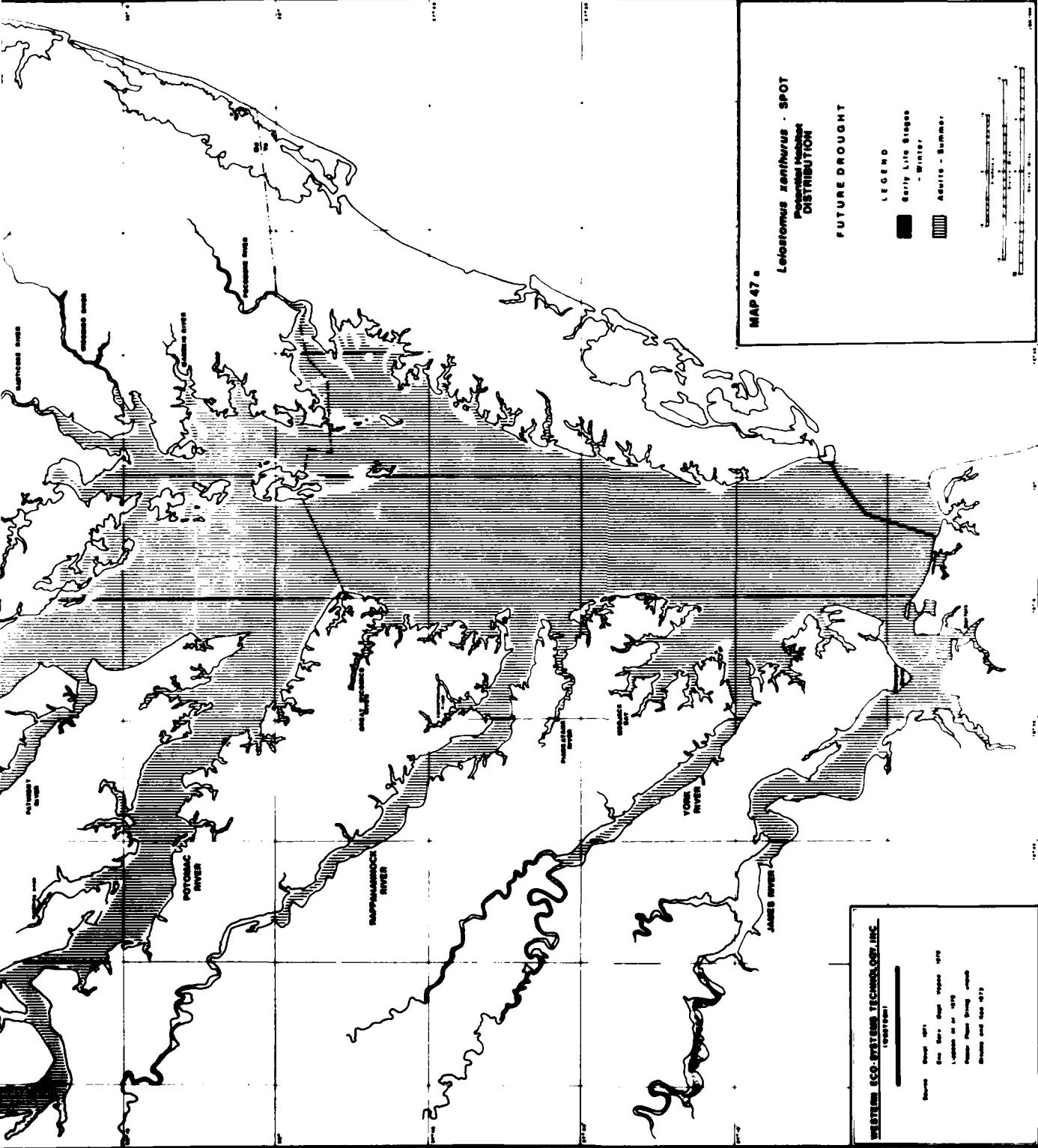


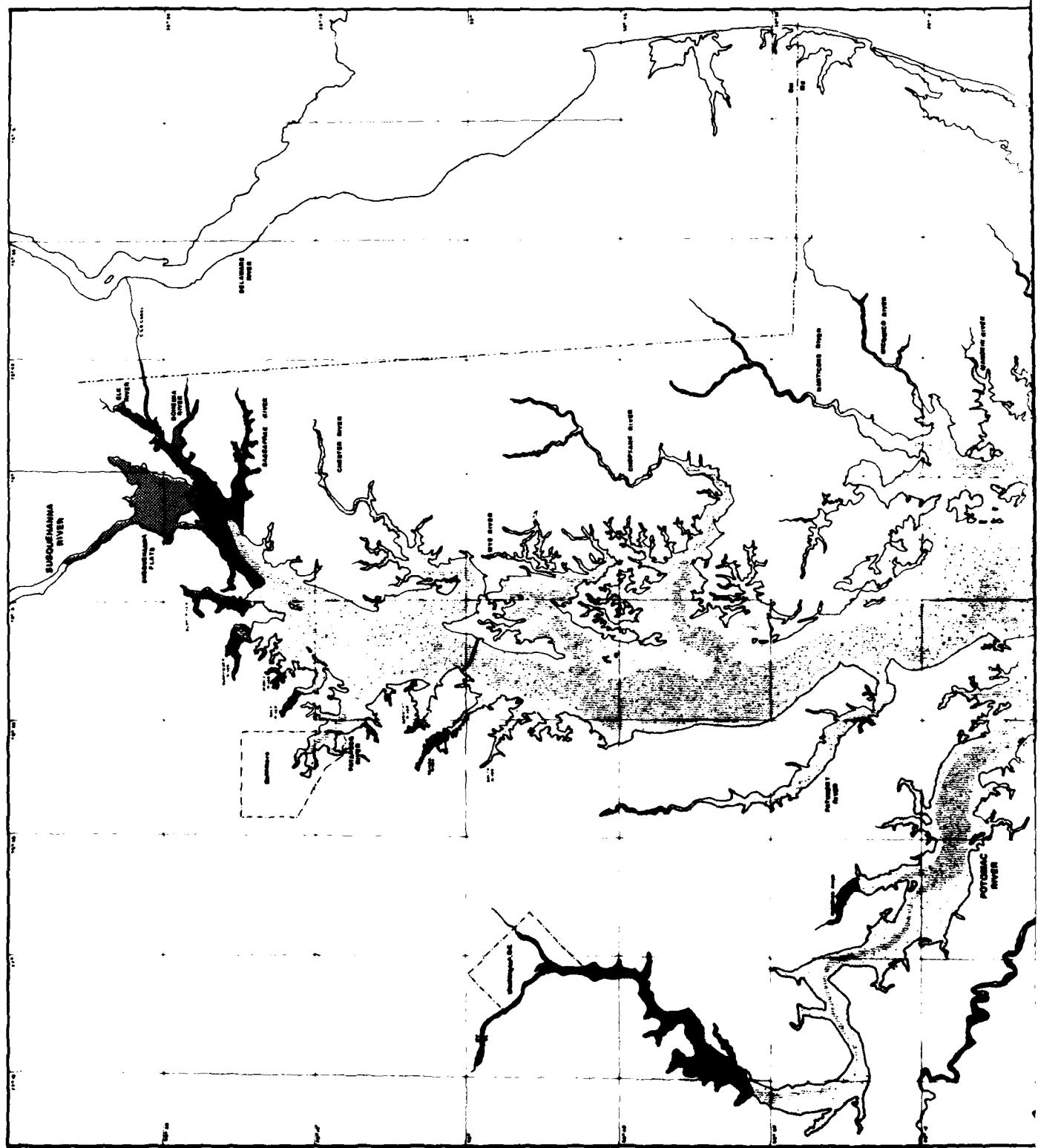


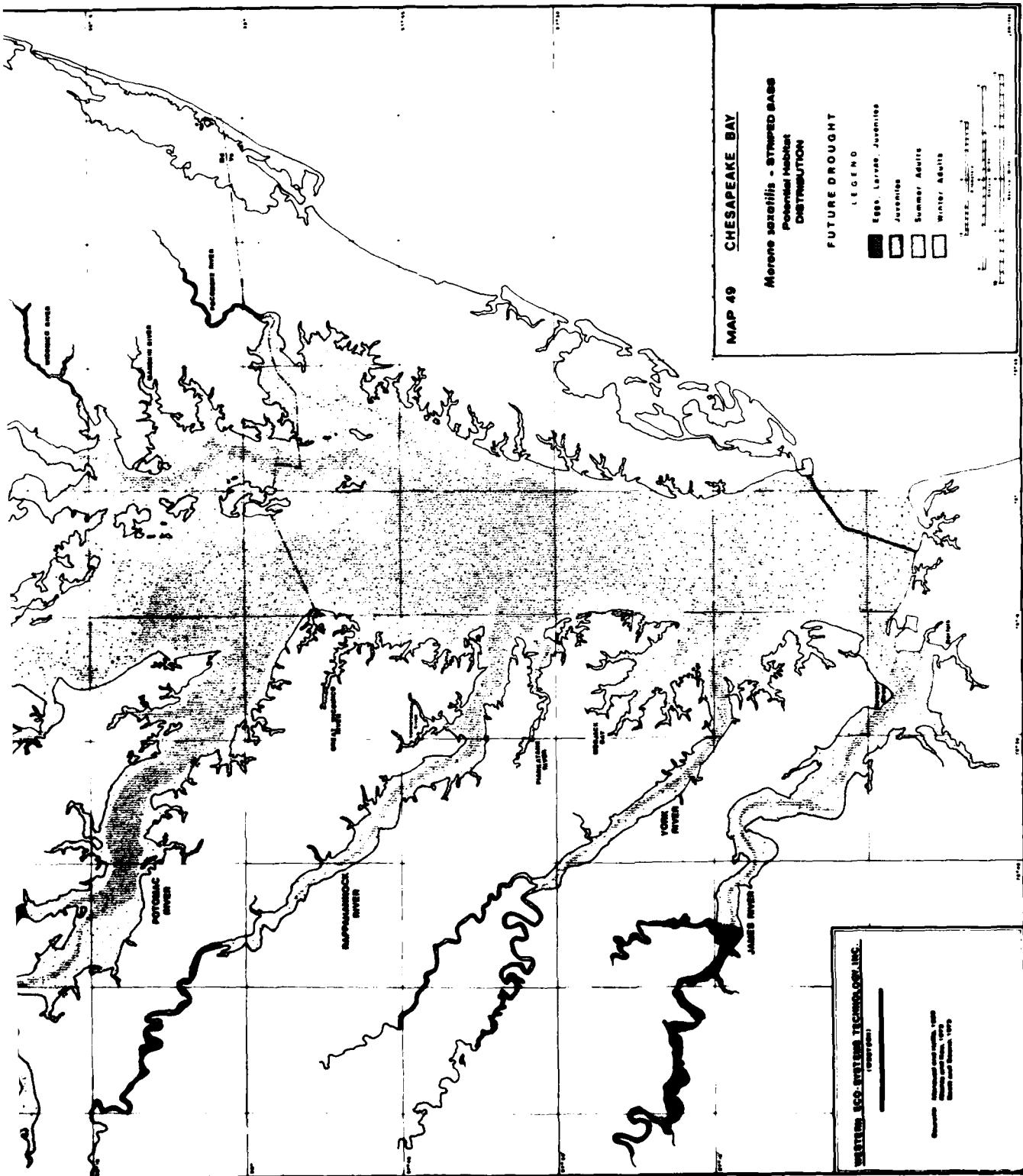


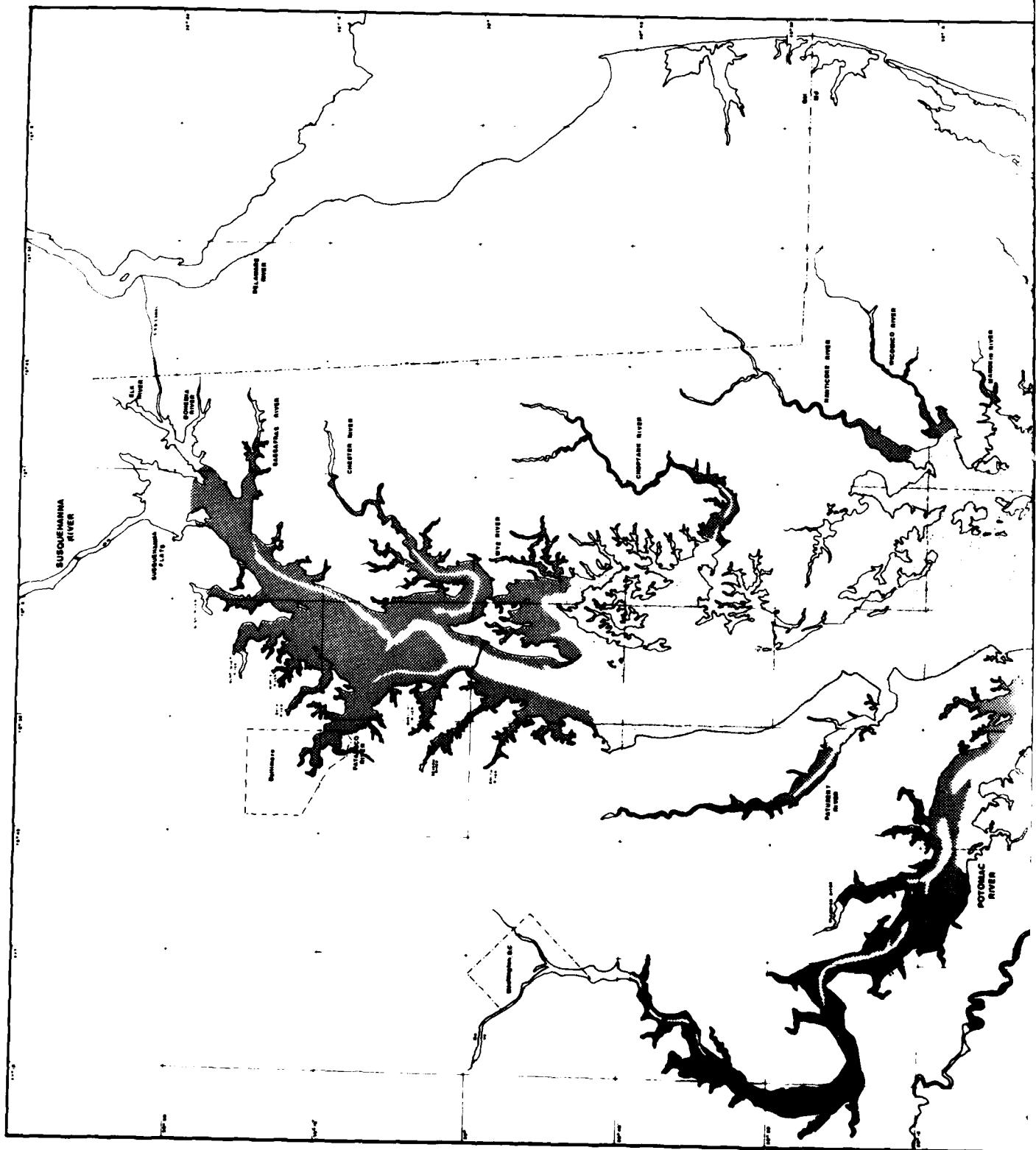


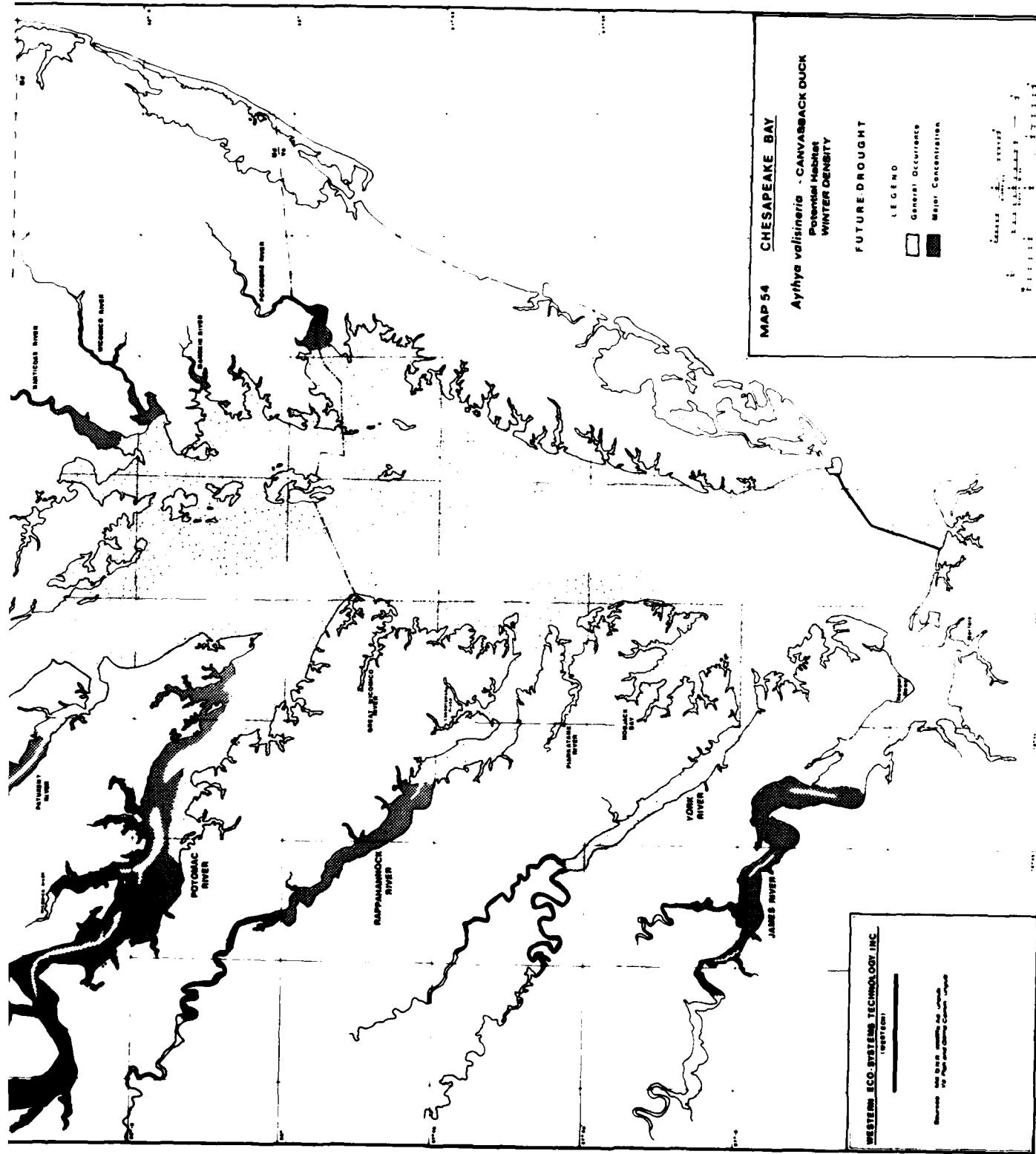












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